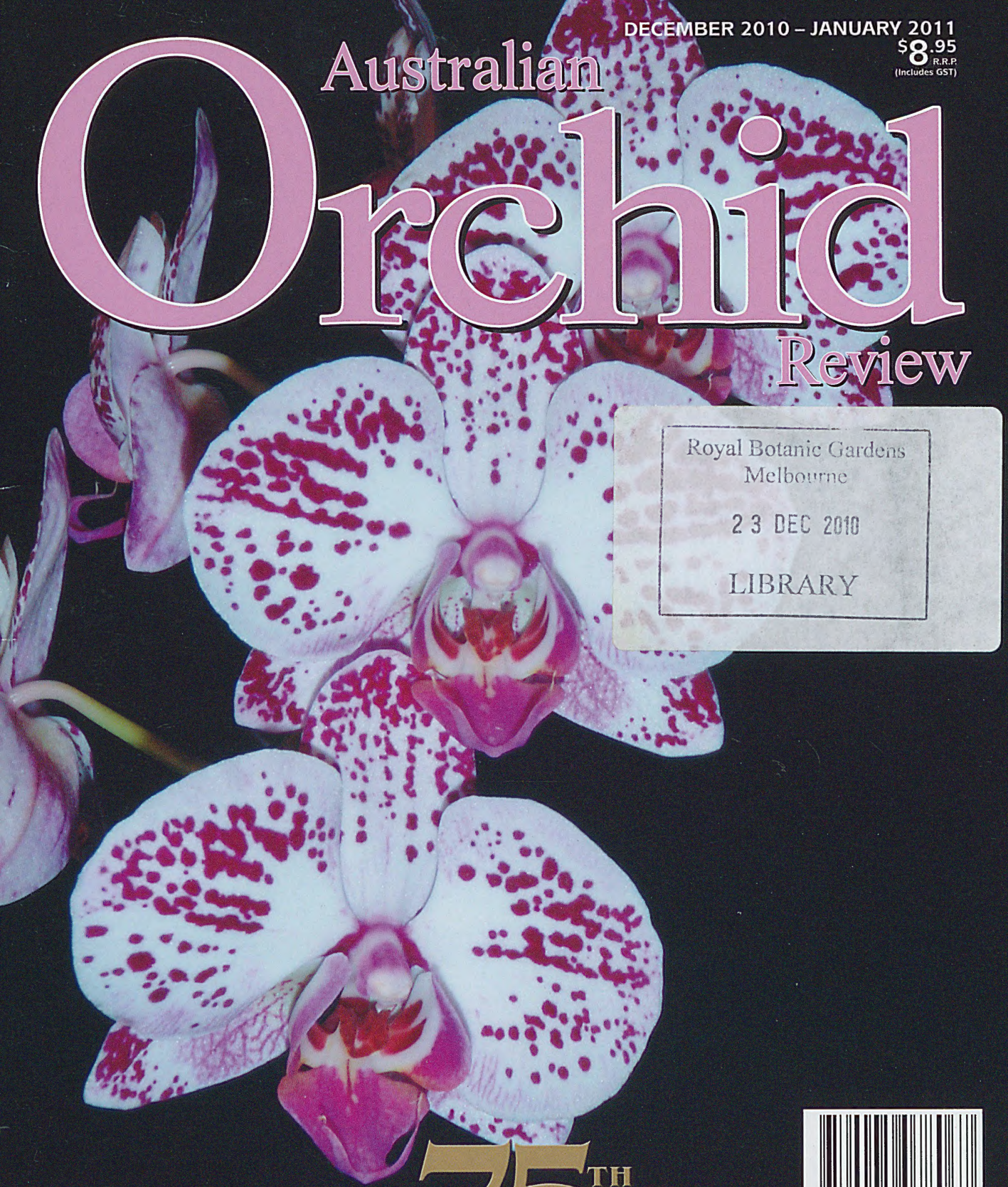
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# From the Editor's Desk



This issue culminates the celebrations for the 75th Anniversary of the *Australian Orchid Review*. We had a fantastic response to our last issue, especially from *Cymbidium* lovers who were overwhelmed after being treated to what was arguably the most comprehensive issue on cymbidiums ever published, at least in Australia. Over 100 quality plants were showcased that helped set the benchmark for both quality and variety. There are only a few back copies left, so if you don't have this issue act quickly. Whilst the *AOR* is available in many newsagents and larger book stores throughout the country, to guarantee your copy it is best to subscribe to the magazine. You receive the magazine before it hits the newsstands, and it is clearly the best value orchid periodical in Australia. A gift subscription for a friend would make an ideal Christmas present for that special orchid enthusiast

We have a wide range of articles in this issue, including a couple from some welcome new contributors. Mike Harrison has written a common sense guide to the cultivation of Australian Native Epiphytic Orchids. This is valuable reading from someone with over four decades cultivation experience behind them, as Mike is also one of the respected experts on our native rock and tree orchids. Phil Spence discusses the "red factor" as seen in some of the northern forms of *Dendrobium speciosum*. This is not to be confused with the controversial red-flecked and spotted blooms that came to light a couple of decades ago, when many of these plants tested positive to virus infection.

Dr. Graham Mackay has also contributed the first of a series of articles on his favourite *Phalaenopsis*. He and his wife Glenda own GiGi Orchids, which specialise in the very latest and highest quality moth orchids, primarily from Taiwan. Graham has already won numerous awards and major prizes at various orchid shows with his superbly grown and presented plants. Gerrit van Ede has provided an outstanding introduction to some of the Terrestrial Orchid Species of the Dullstroom region of South Africa. Many of these orchids can only be seen in the wild as they have proved very unreliable in cultivation. See the inside back cover of this issue for details about the Orchid Conference that is being held in conjunction with the Dullstroom Wild Flower Show, to be held from 27-29 January 2011. See the website www.saoc.co.za for more details.

Cymbidiums are also well represented with a pictorial on the very impressive Cymbidium Orchid Club of Western Australia 2010 Spring Show, with a great report and photos by Carl Slusarczyk. Kevin Butler returns (and also as an advertiser with Ezi-Gro Orchids!) with the results of the prestigious Dean Roesler Trophy.



On behalf of the editorial and production staff at the *AOR*, I wish all our readers, advertisers and their families a safe and prosperous Festive Season. Our "Christmas Santa" is really a beard orchid (*Calochilus*) in disguise! Gary Backhouse and wife Judy used this on their Christmas Cards a few years ago, and is one of my favourite images from one of Australia's premier photographers.


***David Banks***
***Australian Orchid Review***
***david@hillsdistrictorchids.com***



**DECEMBER 2010 – JANUARY 2011**
**Volume 75 – No. 6**


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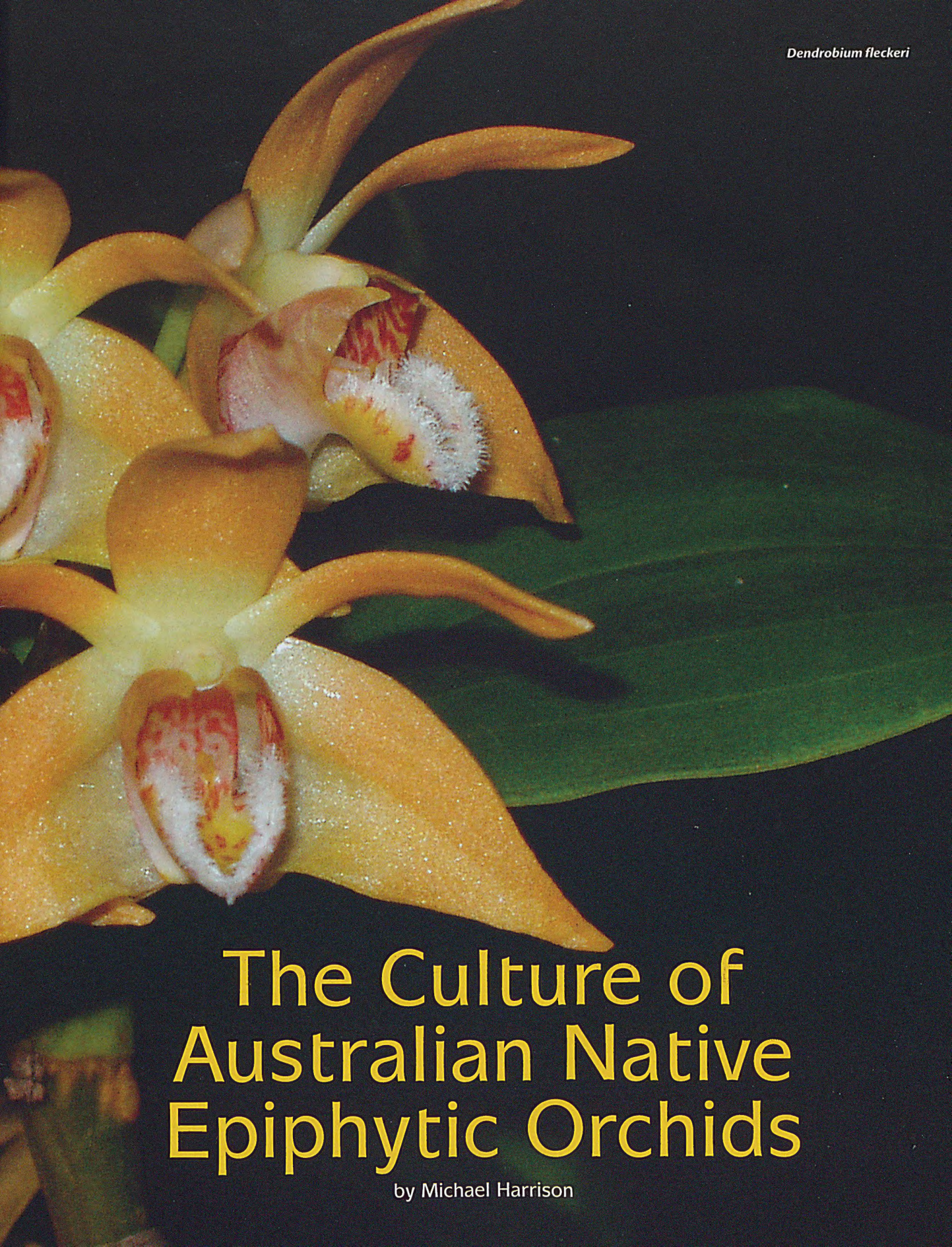



## Cover Shot

***Doritaenopsis* Dendi's Pearl** is an Australian-bred hybrid grown and exhibited by Dendi Orchids at the 2010 St. Ives Orchid Fair.

*Photo: David Banks*





*Dendrobium fleckeri*

# The Culture of Australian Native Epiphytic Orchids

by Michael Harrison



***Bulbophyllum macphersonii*** (Eungella, Qld) growing on hard *Cyathea* treefern



***Cadetia taylori*** (Mt. Finnegan, Qld) growing on soft *Dicksonia* treefern

**GENERAL:**

Most Australian native orchids commonly grown in cultivation are epiphytes. An epiphyte is a plant that grows on another plant, usually a tree or a shrub, using the host for support and an elevated position, but not tapping into the host for nutrients, as a parasite would do. There are many types of epiphytic plants, including some ferns, cacti and bromeliads. A feature of epiphytes, particularly orchids, is their requirement for frequent watering, combined with perfect drainage for the root system.

Australia is home to over 250 species of epiphytic orchids. The majority are tropical in distribution, but a considerable number occur in temperate areas of the country. They occur in a range of habitats along the eastern coast and ranges of the continent, from Tasmania to Cape York Peninsula in north Queensland. A few species also occur in the Northern Territory and the top end of Western Australia. In New South Wales there are around 50 species.

Most epiphytic orchids are found in or near rainforest, although a few prefer open forest situations. Many grow as true epiphytes on tree trunks and limbs, but some also colonise cliff faces, large boulders and rocky outcrops. These rock dwelling types are known as lithophytes. Some species favour bright filtered light, whilst others like heavy shade. Nearly all, however, prefer relatively humid, airy positions, but with some protection from strong sun and drying westerly winds.

**POTTING OF ORCHIDS:**

In nature, epiphytic orchids grow with their roots more or less exposed to the air, and therefore they cannot be cultivated successfully in conventional soil-based potting mixes. They are generally grown as pot plants, in a pinebark-based medium, often with the addition of 10%-20% stone or gravel. The general rule is that the larger the pot size the coarser the grade of potting mix. As a guide, an orchid growing in a 100mm pot would require a 10mm grade mix, whilst a larger plant in a 150mm or 200mm pot would do better in a 20mm grade mix. In recent times chopped coconut fibre (such as OrchidMate) has become a popular substitute for pinebark, and it too is available in various grades. Other potting media such as peat, *Sphagnum* moss, perlite, *Casuarina* bark, charcoal and scoria are used by some growers, usually in various combinations.

The important thing to remember is that epiphytic orchids require perfect drainage for their roots to remain healthy. The roots must have free exposure to air in order to operate effectively, hence the need for coarse, open potting mixes that allow air to circulate easily throughout the mix. Epiphytic orchids **will not** grow in soil.

Nowadays, most growers use plastic squat pots for their orchids. These are relatively cheap and easy to obtain. They come in a wide variety of sizes and styles to suit the smallest or largest plants. For most orchids, choose a pot size that will accommodate 4 years of growth. It is generally recommended not to over-pot orchids by putting them into too large a pot size.

When potting an orchid, put it more or less in the middle of the pot and fill in the mix around the roots. Make sure the crown of the plant is level with the top of the mix and then tap around the sides of the pot to settle the mix. A larger plant may need to be staked to ensure it remains upright. It is important that any plant being potted is held firmly in position so that the new roots will not be damaged as they emerge and grow into the potting mix.





**Above: *Dendrobium* Bert Bushell 'Rebekah'**

**Left: *Dendrobium* Amber Banks 'Kittaz'** (grower: Trevor Miller)



***Dendrobium* Class 'Pauline'**



**Above:** Specimen plants of ***Dendrobium kingianum*** grown by Ted & Barbara Gregory

After 3 or 4 years, organic potting mixes begin to break down, and repotting should be carried out. Remove the plant from its old pot and vigorously shake to root mass to get rid of as much of the old potting mix as possible. Then trim back the old roots by 50% to 75% using sharp cutters, again trying to eliminate any bits of the old mix. Also trim away any dead stems, rhizomes or roots. Choose a new pot, position the plant and fill around with fresh potting mix. Stake if necessary and don't forget to re-write the label with the plant's name and the date of repotting. A good hint to get the plant out of the old pot if it is stuck tight, is to soak it for an hour or so in a bucket of water. The plant will then slip out of the old pot quite easily. Keep in mind that the plant is much more valuable than the old pot, so don't hesitate to cut the pot if necessary. Also be aware that diseases may be spread from plant to plant through the use of infected cutting tools, so it's a good idea to sterilise your instruments. There are products for this purpose.

## ORCHIDS GROWN ON SLABS:

Whilst many native orchids are best cultivated in pots, there are quite a number of species that do not perform well in pots and are best grown on slabs. Many of the exclusively epiphytic species fall into this group, including those in *Bulbophyllum* and many *Sarcochilus*. Also, most Dockrillias are best grown on slabs because of their pendulous growth habits. One of the advantages of slab culture is that the orchids can be hung from weldmesh or trellis attached to a wall or an A-frame, thus taking up less space.

Slabs are simply pieces of various types of material upon which orchids will grow. The most commonly used slab materials are cork bark and treefern fibre. Weathered pieces of hardwood are also successful for some species. Basically, any non-toxic material the orchid will send its roots into will be suitable. In general, treefern fibre gives good results for *Bulbophyllum*, *Dendrobium* and *Dockrillia*. *Sarcochilus* and related genera generally dislike treefern fibre so cork or hardwood slabs are best. Treefern fibre is more moisture retentive than cork or hardwood, so watering should be adjusted accordingly.

When establishing an orchid on a slab, it needs to be tied firmly in place so the plant does not shift or move as the new roots are growing onto the slab. Once the plant is well established, usually after 12 – 24 months, the ties may be removed. The best materials for tying orchids onto slabs are fishing line, horticultural tape or plastic covered wire. Once established on a slab, an orchid will generally not need to be moved for many years, apart from perhaps tying it onto a larger slab as the plant increases in size.



**Left:** ***Dendrobium lichenastrum*** growing on hard *Cyathea* treefern

**Below:** ***Dendrobium speciosum*** growing purely as a spectacular garden plant in full sun in western Sydney



**WATERING:**

Regular watering is required for epiphytic orchids, as they naturally grow in higher rainfall areas. The general rule about watering is that it is best done in the morning, so that plants will dry out during the day and will not be wet overnight. However, during very warm weather, watering may be carried out in the late afternoon, so that plants will remain damp and absorb water during the night.

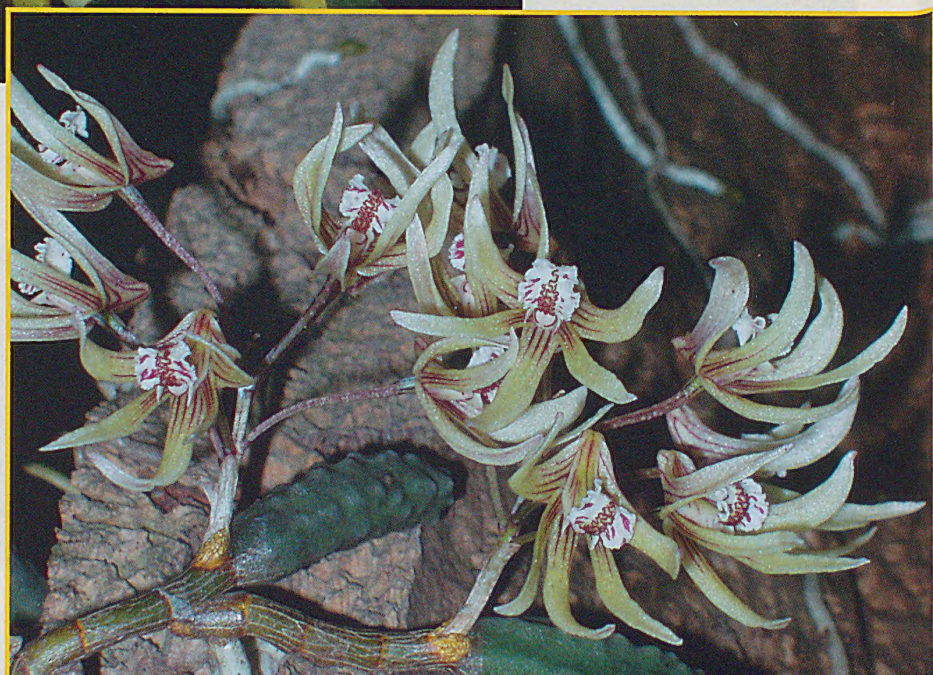
Orchid growers need to decide how best to water their orchids, and the timing and frequency of watering. Much depends on local conditions and prevailing weather. At times, heavy drenching is required, and at other times, just a quick wet down is best. Indeed, to a large extent, watering will determine the level of success with orchid culture.

For orchids growing in pots, it will be necessary to water them at least once a week during the warmer months of the year, and probably every day or two if the weather is hot and windy. During the cooler months, every 7 to 10 days will suffice. They do not need to be kept wet all the time; they like to dry out a little before being watered again. Because of the open nature of the potting mix, water will run straight through the pot, drenching the roots, and then drain quickly.

For slab plants, more frequent watering will be necessary, as they will dry out more quickly after watering. During summer, they will dry out quite rapidly, and watering on a daily basis will most likely be needed. Even during cooler times of the year, watering should not be neglected for orchids on slabs.



**Left:** ***Dendrobium*** **Yondi Tina 'Goliath'**
FCC/AOC



**Right:**
The "Cucumber Orchid" ***Dockrillia cucumerina*** grows best on cork slabs as it generally resents treefern. It enjoys high light and must dry out quickly after watering.



**Above: *Dockrillia linguiformis*** (Numinbah Valley, Qld) performs well on either treefern or cork slabs



**Above: *Liparis coelogynoides*** (Barrington Tops, NSW) grown by Mike Harrison

**FEEDING:**

All orchids respond to correct and regular feeding. Orchids particularly need feeding during the growing season, when they are producing new growth and they are at their most active. For many orchids, this is during the warmer months of the year. Some orchids have a particular growing season, which is followed by a period when they are "resting". Other types continue to grow throughout the year. Seek advice on how best to handle the orchids you are growing.

Most growers use liquid fertilisers, with the concentrate mixed with water and sprayed or watered onto the plants every 7 to 10 days. They usually mix fertilisers at half the recommended rate to avoid the possibility of overfeeding their orchids and burning the roots. Alternate applications of organic and inorganic fertilisers seem to work best. The best fertilisers are those formulated specifically for orchids, and there are even particular formulations depending on the season. However, feeding with general garden fertilisers will be better that no feeding at all.

**CULTURAL CONSIDERATIONS:**

Different types of orchids require different conditions, and it is always best to seek advice about the orchids you intend to try, to at least give you a guide. The most obvious thing to determine is whether a plant is tropical or temperate in its requirements. Tropical orchids need a heated glasshouse in temperate areas of the country where minimum wintertime temperatures fall below 12° C at night (a minimum of 16° C is preferred). Likewise, most temperate species will not grow well in tropical climates, as they require significantly cooler evening temperatures. There are also some species that are especially sensitive to hot, dry conditions during summer, and it can be a challenge to grow these orchids outside their normal habitats. It is therefore important to have some idea of where your orchids originate – both in terms of location and altitude - and the kinds of conditions they need. Do they need bright light or shade? Do they like lots of water throughout the year, or is a rest period necessary? Do they originate from hot, steamy, tropical climates, or from highland mountain areas where it is always cool and damp. Are they particularly susceptible to any pests or diseases? These and other questions require some research on the part of the grower.

An important aspect of orchid culture is the provision of fresh air. Orchids do not like still conditions, and will always perform better when there is good air movement around and across them. Some orchid growers even place fans in their orchid houses to provide constant air circulation.



**Above:** ***Oberonia palmicola***
(Eungella, Qld) growing on hard *Cyathea* treefern


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**Right:** ***Phalaenopsis rosenstromii***
from Cape York, far North Qld grown by National Botanic Gardens, Canberra





**Above:** ***Rhinerrhiza divitiflora*** (Kippax, NSW) growing on natural cork oak bark



**Above:** ***Sarcochilus ceciliae*** (Townsville, Qld) next to the smaller flowered and closely related ***Sarcochilus eriochilus*** (Ellenborough Falls, NSW)



**Right:** ***Sarcochilus*** **Daybreak 'Tawny Red'** (grower David Butler) Cross between Aussie Dawn and Fitzhart


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Many of the commonly grown types of orchids are fairly adaptable to a wide range of cultural conditions. That is why they are popular and successful in cultivation. Most growers begin with plants that are suited to their local climate and are easy to grow. Once they have mastered these species, they then move on to others that may require more exacting conditions and specialised treatment. Over a period of time a level of expertise is developed, and more and more different types of orchids may be tried. Some growers stick with the orchids they know they can grow, whilst others are always trying something new. Orchid growing is a pursuit that can be expanded to suit the most modest or the most extravagant of tastes.

**HOUSING YOUR ORCHIDS:**

The construction of a purpose-built orchid house becomes a priority once your collection has grown to a certain stage. Most orchid houses consist of a frame of steel pipe or timber, with a covering of 70% shadecloth on the roof and walls. However, many shade-loving orchids prefer either a heavier grade of shadecloth, or an extra layer. It is usually best to create at least two shade zones in your orchid house to cater for various types. However, keep in mind that the common problem of poor flowering is often attributable to excess shade. Orchids need adequate light to help stimulate flowering.



**Left: *Sarcochilus falcatus*** (Dorrigo, NSW) this is the "late white form" that actually grows with the normal form that flowers eight weeks earlier


Australian Orchid Review



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AOR 065



**Above:** ***Sarcochilus falcatus*** (Dorrigo, NSW) grown on cork, this is the common spring flowering form from the Dorrigo Plateau

Many growers also have an area in their orchid houses which is covered by plastic or fibreglass, so that watering can be more closely controlled. Such an area may also be used for flowering plants, to protect the blooms from being ruined by rain. Be sure to have adequate bench space for your potted plants, and weldmesh panels on the walls will accommodate your slab plants.

Within the orchid house, it is wise to group your orchids according to their needs. Those that prefer bright light and restricted watering, for example, should be kept together, whilst those that like shady conditions and daily watering should be grouped in another area, and so on. This allows for ease of handling, and will result in better culture.

**ORCHIDS IN THE GARDEN:**

Most specialist growers cultivate their orchids in purpose-built greenhouses or shadehouses. However, as long as the local climate is suitable, many orchids may be easily grown as garden plants, either in pots on patios or paths, or under trees in the garden, where they receive dappled light through the foliage. It is simply a matter of finding a suitably protected spot in the garden, where the orchid will receive adequate light, and then providing it with the cultural attention it requires, such as regular watering and feeding. It is best to position them on a low bench or the like, so they are not sitting directly on the soil. Pot hangers may be employed to suspend plants from the lower branches of trees in the garden.



*Sarcochilus olivaceus* (Ellenborough Falls, NSW) grows well on treefern slabs or totems, related to *Sarcochilus parviflorus* from Queensland

Orchids may be attached directly to trees in the garden, as long as the bark is non-shedding. Many deciduous trees make excellent hosts for epiphytic orchids, allowing extra light to reach the plants during the cooler months, which is ideal. A friend of mine grows many notoriously difficult to grow "twig epiphytes" successfully on a live tea-tree (*Leptospermum* sp.), simulating the plants natural environment. Some of the lithophytic species will grow successfully if placed on rocks or in rockeries as well. The only problems likely to be encountered are attacks from snails and slugs, and occasionally possums may chew your orchids. Remember that protection from frost is important in cool climate areas during winter.

**AUSTRALIAN NATIVE ORCHID HYBRIDS:**

Over the past 30 – 40 years, breeding programmes undertaken by a number of growers and nurseries has resulted in the availability of many high quality hybrids, many of them in the genus *Dendrobium*, but also in *Dockrillia* and *Sarcochilus* (plus intergeneric combinations). These hybrids are compact, easy to grow plants producing masses of brightly coloured blooms over an extended flowering season. They are well suited to average backyard situations and, given a little care and protection, they will reward the grower with a lovely display. When in flower, they may even be brought indoors for a couple of weeks to brighten up the living room, often with a fragrant bonus.

Most hybrids are grown as pot plants, although a number of *Dockrillia* hybrids may be cultivated on slabs or in hanging baskets. The cultural requirements for hybrid Australian orchids are essentially the same as for the species but the hybrids generally have greater vigour. Generally, *Dendrobium* hybrids prefer bright light conditions, Dockrillias a little less light, and *Sarcochilus* more shade. Most hybrids are hardy, adaptable plants, and they will perform admirably under a range of conditions. Many are well suited to novice growers, in that they will tolerate a fair degree of cultural mistreatment.

**PESTS AND DISEASES:**

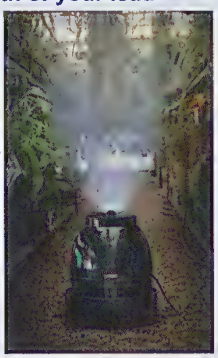
There are no particular problems with Australian native orchids. Snails and slugs need to be controlled, as flowers and buds are attractive to them. Aphids, mealy bugs and thrips will also sometimes attack flowers and new growths, but these are not difficult to control with the correct chemical treatments. Scale insects sometimes appear (like aphids, they are carried from plants to plant by ants), and steps should be taken to control them as well. The dendrobium beetle, a brightly coloured orange and black beetle about 10mm long, can be destructive on flowers and new growths. Chemical treatments are available but the best control is to catch them by hand and crush them.

The photographs of *Dendrobium fleckeri* (Mt. Lewis) and *Trichoglottis australiensis* were taken by the author. All other images were taken by David Banks from plants in his collection unless noted otherwise in the captions.

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***Dendrobium speciosum***
Slight Red Factor capsule

# *Dendrobium speciosum* and "The Red Factor"

by Phil Spence

Over the last 45 years I have been observing the flowers of *Dendrobium speciosum* and the many different forms and variations within this species. I feel now is the time to correct some of the misinterpretation of the "Red Factor" and to help people use this quality in generating red flowering speciosums. For the purpose of not complicating this article I will call all the varieties and newly elevated species for example *D. speciosum* subsp. *pedunculatum* (or now *D. pedunculatum*) to just *D. speciosum*.

One's life is too short to line-breed this species many generations and to flower out the five or six generations that is probably needed to have bright warm red flowers. From my observations on line breeding I believe it is possible to create reds but I believe no one person can do this, so my understanding of the red factor and other thoughts about this species should be published to help other people understand what to look for.

The "Red Factor" in *D. speciosum* (Rhodocyanin): what is it and where did this terminology come from? The first I heard these words were in an article published by Alvin Bryant, and he believed that *D. speciosum* had a recessive colour of red. Everyone laughed but he was right and a few took note of what he had published, I was one of these people.

Not long after this article appeared some of the more hardened growers of *D. speciosum* started looking closer and noticed flowers with red spotting and others had very dark red inflorescences some of the flowers had dark red on the back of the flowers especially near where the floral segments join at the ovary.

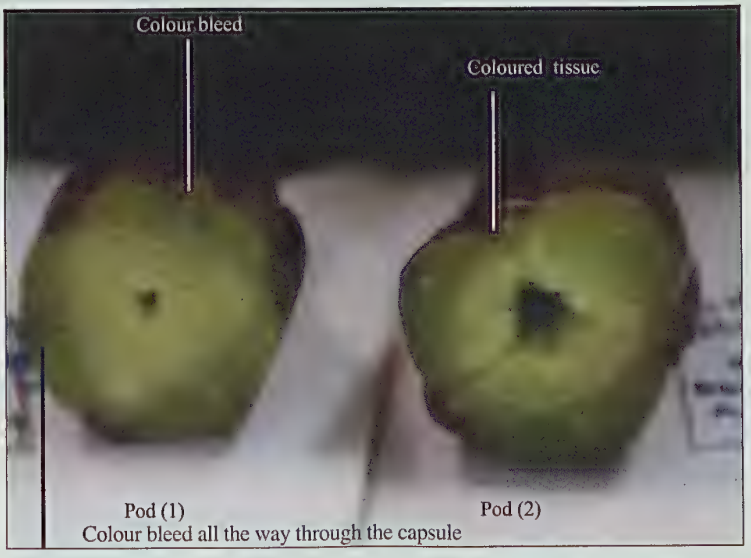
Many of these plants were said to have virus and one grower published an article stating outright that this red factor was virus. Yet this same grower came to me and said he was too hasty in publishing his article, and wanted as many of the seedlings I would let him have of the particular cross that I had produced. It was from mating one of spotted flowers with one whose flowers had red on the back and also produced a dark red inflorescence. It is fact that many of the plants with spotted flowers were shown to have virus, but this is not to be confused with this true "red factor". The virus also manifested itself in the foliage of the plants, with marked and distorted leaves and a general decline in vigour. In hindsight, he was probably mostly right about the virus, as when this species does get a virus this does happen, but the plant also shows signs of it in the leaves. The plants I used were tested and results were virus free.

These seedlings were created by matching two healthy examples of these above-mentioned plants together. I raised the seedlings by drying the seed (just in case the virus test results were wrong) and then sowing it in flask. Very early in the flask I observed seedlings that were about 3-4 mm high that were of a normal green that you would expect but about one in ten were a dark cherry red. This red stayed with the seedlings for about the next two years of their lives after they were deflasked, as the growths became larger they reverted to a darker green than the normal plants of this species have.






**Above: *Dendrobium speciosum*** normal seed capsules in cross-section




**Above: *Dendrobium speciosum* subsp. *pedunculatum*** "Red Factor" seed capsules in cross-section

The primary reason the dry seed was sown from a dry capsule (and not by green pod), was to remove the possibility of the seed transferring any virus. After about eight years these seedlings started to flower. Nearly all flowered the colour of the normal *D. speciosum* as some were cream and some were yellow-white. A few had red spotting on the sepals and petals two had red stripes on the sepals and petals and one did flower a peach colour. The ones that had red in the flowers all had dark burnt red inflorescences and the ovaries were also dark burnt red.

After this first experiment I started looking harder at this species and when the flowers die you can pick the plants that have this red factor. A normal flower when it dies goes white to a light brown. When the flower dies at the base of the column of those plants that have the red factor, the floral segments turns almost magenta-red and this red (depending on how strong it is) can bleed all the way to the end of the segments almost as if the flower is bleeding.

Last year I decided to take photos of some of the pods to show what I am talking about. Everyone seems to be making crosses for dark yellows or bigger more filled in flowers and (to me) missing many of the important facts, such as reds, pure whites, faster flowering seedlings, upright inflorescences without staking, longer lasting flowers, more compact plants with a root structure that does not put their roots into the air.

Most native growers are aware of a choice Australian hybrid called *Dendrobium* Avril's Gold. If you look at its pedigree you will find that it is 75% *D. speciosum*. One of the speciosums in the background of *D.* Aussie Child (a hybrid between Hilda Poxon and Aussie Spectrum that I made and subsequently registered back in 1986) was a "red factor" *D. speciosum* of mine.

Many of the plants that have flowered are almost blotched all over the floral segments with warm red. I believe this is because of the recessive red gene in the red factor in the plant of *D. speciosum* I used, and coupled with the 12.5% of the visual red gene of *D. tetragonum* this red has become a dominant (visual) gene.

If you look at the photos of the seed capsules, the first one is a normal coloured pod and if cut through the flesh of the capsule would be the same colour as outside. The second pod is showing a small amount of red on the outside. The third pod is a red factor sibling cross between two clones of *D. speciosum*, and this pod when sectioned has red flesh and a dark red bleed that runs into the edge of the capsules seed.

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**Above:**
***Dendrobium speciosum* subsp. *pedunculatum***
"Red Factor" developing inflorescence
(photo: John Ryan)



**Above: *Dendrobium speciosum* subsp. *pedunculatum*** "Red Factor" and 'Yondi Yellow' (plant & photo: John Ryan)



**Above: *Dendrobium speciosum* subsp. *pedunculatum* 'Peach'** (Red Factor) floral detail (plant & photo: John Ryan)



**Left: *Dendrobium speciosum* subsp. *pedunculatum* 'Peach'** (Red Factor) reverse of flowers (plant & photo: John Ryan)



*Dendrobium* Avril's Gold
(grower: Tinonee Orchids, photo: D. Banks)
– note different coloured flowers on separate inflorescences off the same pseudobulb!



*Dendrobium* Avril's Gold
'Angus'
(grower: Henk van den Berg,
photo: D. Banks)

# *Rhizanthella slateri* – Rare Underground Orchid Successfully Relocated

by Craig Allen

Scientists are celebrating the unexpected emergence of an endangered orchid, saved from the blade of a bulldozer on the New South Wales central coast. Researchers from the Centre for Plant Biodiversity in Canberra excavated specimens of the little-known eastern underground orchid, *Rhizanthella slateri*, earlier this year to protect them from a new highway project at Bulahdelah, north of Newcastle.

They collected the plants for seed and transported them 430 kilometres south to Canberra, but never expected them to survive and flower. But they have - sending up several inconspicuous red-brown heads of flowers about the size of a 20 cent piece - leaving scientists hopeful for the future of the species.

Research scientist Dr Mark Clements said the successful relocation and subsequent flowering was a breakthrough.

"This is one of the most difficult orchids on earth... if we can shift this, we can probably shift most things," he said. "Even if it's a low-success rate, at least we can shift some of them successfully and hopefully propagate them as well. The research we're doing really should enable us to introduce seedlings back into the wild, and really ensure the long-term survival of the plant."

Eastern underground orchids have been reported at just a handful of sites in New South Wales and southern Queensland, but scientists concede there may be more undiscovered colonies.

"We just can't find it easily, and we don't really know where else it occurs," Dr Clements said. "It may be common, but we don't know that. The current knowledge is that we've got one assured place where we can see it, and that's Bulahdelah."

But the once reliable site was under threat from a highway project, as the New South Wales RTA sought to bypass the town. Dr Clements and a small team of researchers were funded by the RTA to study the elusive plants, before the bulldozers were allowed anywhere near the site. Their work was complicated by the fact the orchids are virtually invisible, because they are never seen above ground.

"It lives under the ground as rhizomes. And when it wants to flower, it comes up to the surface of the ground and breaks the surface but is still under the leaf litter. And that's where it remains and flowers," Dr Clements said.

Through exhaustive field work, about a dozen of the endangered orchids were identified - but their exact locations were kept secret from the public. Then, in negotiation with the RTA, the route of the highway was altered to avoid the known colonies, while other plants were salvaged while the bulldozers circled.

"This particular clump of dirt in which the plant occurred was removed from the Bulahdelah bypass in order to allow them to go ahead with the construction, because we found this plant at the very last moment before the construction occurred," Dr Clements said. "While we were excavating these plants, which took about two days, we had the bulldozers working nearby, actually clearing the footprint."

Despite their best efforts, the scientists never expected the salvaged plants to survive - let alone flourish and flower.

"To work on it, and to experimentally find out about it and its biology and try and germinate it and try and translocate it, has been a career highlight for me," Dr Clements said.

And if motorists using the soon-to-be-completed Bulahdelah bypass notice any strange bends in the highway, Dr Clements says there is a sound reason.

"We actually tweaked the highway... it's got a slight kink in it, because the orchid's there," he said.

(We are grateful to Dr. Mark Clements for providing the excellent images of *Rhizanthella slateri* from Alum Mountain, Bulahdelah, NSW for publication in the *AOR*.)



***Rhizanthella slateri***
– a unique jewel amongst Australia's bizarre and diverse orchid flora

***Craig Allen***
***ABC Television, Canberra***
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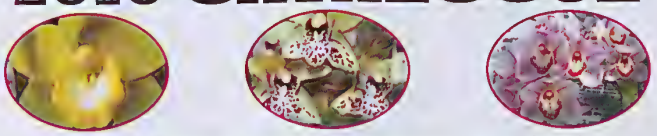


**Right:** ***Rhizanthella slateri***
– a strong colony uncovered after the leaf litter was temporarily removed



**Left:** ***Rhizanthella slateri***
– two flower-heads just coming into bloom


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**Right:** ***Rhizanthella slateri*** – another colony with at least six flower heads



**Left:** ***Rhizanthella slateri*** – emphasising its cryptic nature


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**Left:** Dr. Mark Clements in the field searching for the eastern underground orchid (Photo: D. Banks)

**Below:** ***Rhizanthella slateri*** – highlighting a single bloom fully open




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AOR 028


Cymbidium Tommy
'Amy'

# Cymbidium Orchid Club of Western Australia *2010 Spring Show*

Text and photos by Carl Slusarczyk

Fresh from hosting our inaugural Australian Cymbidium Society National Show, the attention of members turned to our Spring Show which ran from 20th-22nd August in the grounds of Ezi-Gro Orchids. Not quite spring you say? Maybe not, but there has been a lot of fine spring weather throughout winter this year and we are keen. Additionally the number of quality plants is now greater in August than September, which previously was the time to see cymbidiums at their finest.

The show theme this time was "Classic Cymbidiums". The displays showed a variety of interpretations with Ross and Alice Lang featuring classic books, Phil Taylor and Gillian Marsh taking inspiration from classical music and Keith and Judy Podger incorporating a range of antique carbon neutral classic household appliances (powered by elbow grease).

Possibly because the show coincided with the Federal Election the marquee was divided into a left wing for the display of show plants (there were a lot of reds and some greens) and a right wing for the capitalist interests of entry fees and plant sales. The Nationals were represented by cultural discussions and demonstrations, also in the right wing. I thought I could hear strains of *L'Internationale* coming from Phil and Gillian's display!

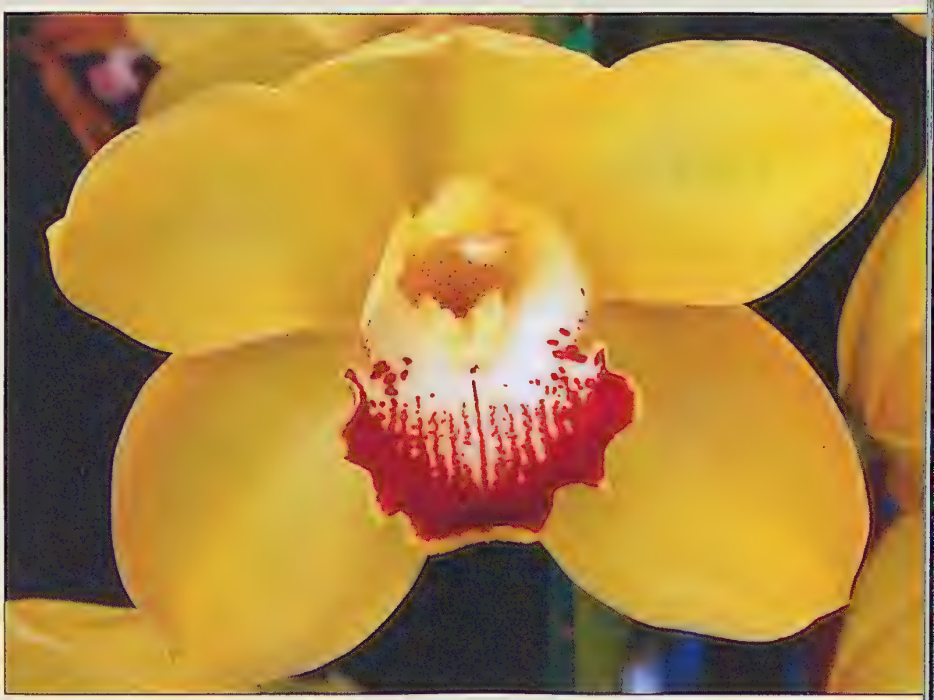
There was a good turnout of enthusiasts and onlookers, many interesting plants and some fine weather and so overall a worthwhile time was had by all concerned.

Some of the plants featured in the photographs were also exhibited at the National Show and so I hope that seeing them again will make some of you all dewy-eyed and nostalgic, if only for a fleeting moment.

In our climate the change of seasons is not too dramatic and as we have no sparrows on this side of the Nullarbor Plain you can just about please yourself when it comes to nominating the start of spring. Fortunately when it comes to the springtime job of re-potting the language is unequivocal - keeper and thrower. There may be a few more of the latter this year given the prospect of water restrictions.

◀ ***Cymbidium* Tommy 'Amy'**

This large specimen plant owned by Ezi-Gro Orchids was adjudged the Champion Plant of the Show. Not bad for a hybrid registered in 1965 and truly a classic *Cymbidium*. It is the natural order that plants should grow into large specimens as in the wild they just get bigger until they die. In his book *Growing Orchids - Cymbidiums and Slippers* Jim Rentoul records plants of *Cym. lowianum* and *Cym.* Lowio-Eburneum growing in Sydney prior to 1930 which were 1.75 metres in diameter. Since the resurgence of interest in the pendulous types some of the floriferous older diploid first generation *Cym. floribundum* (syn. *Cym. pumilum*) hybrids such as *Cym.* Fairy Rouge 'Lavender Falls' (1967) and *Cym.* Nancy Maxwell 'Shirley' (1966) have also made a comeback and proven to be superior in some respects to the newer ones especially when grown to specimen size. There is a limit to this however as you just cannot get hanging baskets big enough – unless you make them yourself.



▲ ***Cymbidium* Icho Gleam 'Giant'**

Ezi-Gro Orchids entered this Bryant's Orchids bred *Cym.* (Icho Tower 'Trinity' x Lunakira 'Gleam') hybrid. Large size, good colour and a feature labellum added up to a fine result and the Reserve Champion of the Show.
(Photograph courtesy of Ross Lang.)



▲ *Cymbidium* (Anne Rogers x Anna Szabo) 'Poison Ivy'

Entered and hybridised by Ezi-Gro Orchids. The colour contrast is outstanding with the labellum mainly coming from *Cym. parishii* 'Emma Menninger' which is present on both sides of the family tree.


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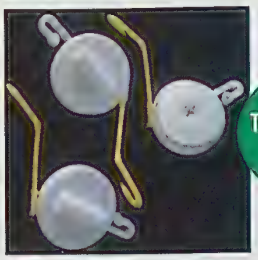
▲ *Cymbidium* **(Red Nelly x [Chilli Pepper x President Gorbachev])**

This Valley Orchids bred plant was entered by Phil Taylor and is a sibling of the cultivar awarded at the Perth ACS National Show two weeks earlier. Phil has grown a multi-genera orchid collection for many years but went more heavily into cymbidiums from 2002 with the purchase of a number of seedling flasks from Valley Orchids. While Graham Morris has bred almost exclusively for the production of free flowering and easy growing pot plant types suited to his markets the best of them also have appeal to the hobby grower which Phil has proven by his outstanding success in winning five awards and many Champion sashes from his Valley Orchids stock. Of course good culture helps.

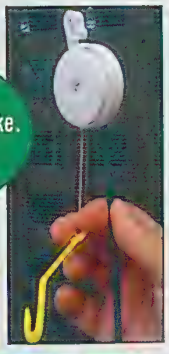


▲ *Cymbidium* **Paradisian Surprise 'Cute'**

This is from a cross by Paradisia Nursery of *Cym.* Devon Parish x *Cym.* Sarah Jean and owned by Ezi-Gro Orchids. The cuteness comes from the *Cym. floribundum, Cym. devonianum* and *Cym. parishii* grandparents with *Cym.* Sleeping Beauty added for a little sophistication.

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▲ *Cymbidium* **([One Tree Hill x Sleeping Dream] x Beau Guest) 'Gold Bells'**

Owned and bred by Ezi-Gro Orchids. It is a second generation *Cym.* One Tree Hill hybrid but is a small standard in size. Its *Cym.* Beau Guest 'Daffodil' parent contributes outstanding colour.


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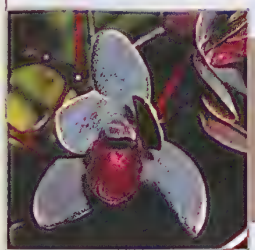
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### *Cymbidium* (Pink Snow x Cleo's Melody) 'Pink Topping'

This Ezi-Gro owned and bred small standard had good peduncle length to the first flower similar to *Cym. insigne* and so showed its attractive flowers well clear of the foliage.

### *Cymbidium* Ison's Wild Thing

This *Cym.* (*tracyanum* x Son of Freak) plant was hybridised by Geyserland Orchids and entered by Peter and Lyn Wise. It was a robust growing plant with very long racemes of over twenty flowers. A number of this grex have sepal peloric mutations originally derived from *Cym.* Cleo's Melody 'Freak Out' which was first offered for sale by Adelaide Orchids in the late 1970s. This is a true enthusiast's hybrid in that it is too big for a pot plant, would have limited life as a cut flower due to its *Cym. tracyanum* parent and be of no use to a hybridiser as it is a triploid. However even without the peloric markings it is interesting and different and the enthusiast has every right to be enthusiastic about anything they might wish.





◀ ***Cymbidium* Ruby Flame 'Lee'**

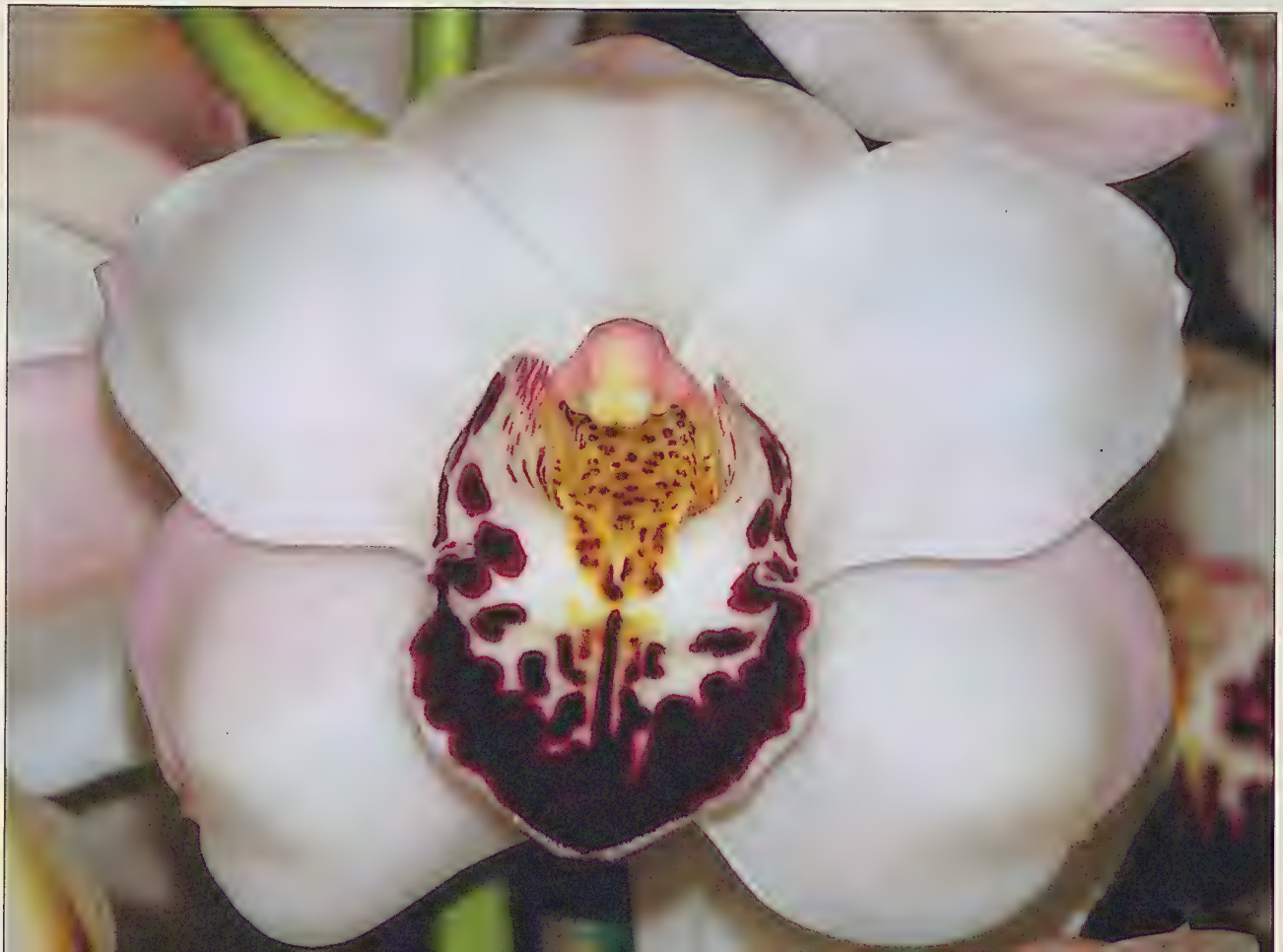
This plant was entered by Ezi-Gro Orchids and is from Gordon Giles (NSW) breeding of *Cym.* Alexandra's Flame x *Cym.* Flaming Vulcan. Its colour is cherry red being quite different from the wine reds that we are more used to seeing.

▶ ***Cymbidium* Mariflor 'Green Fantasy'**

This was owned by Ezi-Gro Orchids and hybridised by Andrew Easton from *Cym.* Mary Pinchess x *Cym.* Cymbiflor.

▼ ***Cymbidium* (Chianti Rose x [Lunata x Willunga Royal])**

Owned by Phil Taylor from breeding by Kalamunda Orchids. This is a surprising result for colour given the parentage. Readers will remember Terry Poulton's creamy white 2008 Sage Horticultural Award winning *Cym.* ([Hove x Red Valley] x Lunar Flame) featured in this magazine which was also an enigma.





*Cymbidium* Mariflor
'Green Fantasy'



◀ *Cymbidium* (Red Planet 'Mystery Orange' x Valley Splash 'Aurora')

"More genuine orange flowers expected here" was the only description given for this mating by its hybridiser Graham Morris of Valley Orchids. I think he would be happy with this result and I know that its owner Phil Taylor was. While most of the *Cym.* Valley Splash varieties have a white base colour, the parent of this plant was 'Aurora' which is yellow with a prominent reddish brushing on the outer half of each tepal.

▼ *Cymbidium* (Vienetta Blues x Blazing Fury)

Entered by Keith and Judy Podger from breeding by Ezi-Gro Orchids. I could not detect any hint of blue but nevertheless another impressive result or colour, this time in crimson red.




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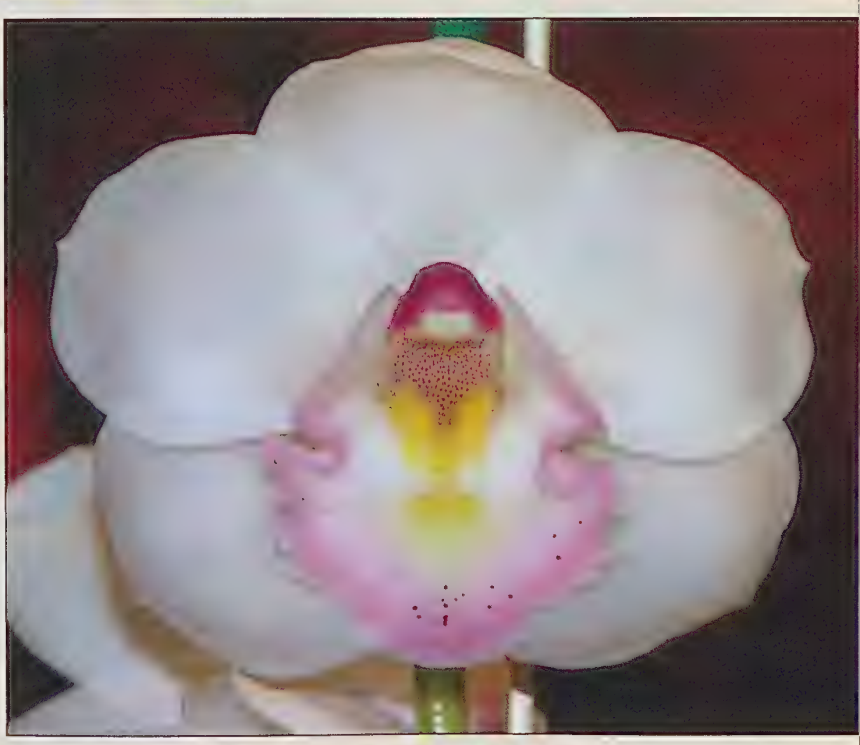


*Cymbidium* **{([Sleeping Dawn x Musita] x Dream Therapy) x Beau Guest} 'Wonder World'**

Owned and hybridised by Ezi-Gro Orchids. I find these yellow pure colours difficult to photograph. This one is also difficult to write down! The parental stock originated from Geyserland Orchids and one had not yet been registered at the time of its closure. In general there may be little value in registering a hybrid when there is no intention to breed on from it or when no superior cultivar has been produced especially given the cost involved. An attractive sibling was also shown and so this registration will cost thirty pounds sterling. Perhaps *Cym.* Must Sleep? begat *Cym.* Must Dream? begat *Cym.* Must Guess! Whatever the name it would be a beau geste to ensure the registration of all your own hybrids.

*Cymbidium* **(Star Angel x Kuranulla) 'Little Creature'**

This small standard seedling was entered by Ezi-Gro Orchids and hybridised by Bryant's Orchids. The colours and classic form reminded me of *Cym.* Balkis 'France' and 'Captain Anderson' which were popular when I was a boy and could be bloomed with clean white sepals by shading the buds. No such effort is required here. The *Cym.* Balkis grex (*Cym.* Alexanderi 'Westonbirt' x *Cym.* Rosanna 'Pinkie') was registered in 1934 and achieved worldwide acclaim for both show and breeding plants. *Cym.* Balkis 'Luath' AM/OSNSW (1950) was Australia's most celebrated cultivar achieving great success on the showbench and its genes are to be found in some of our current show plants via its chance tetraploid progeny Wallara 'Gold Nugget' and Valya Craig 'Judy'. Adelaide Orchids achieved notoriety in winning Champion Cymbidium at the 1969 Sixth World Orchid Conference in Sydney with *Cym.* Balkis 'Compact' AM/AOC,AOS,RHS. *Cym.* Balkis appears in the ancestry of this cultivar via the early flowering *Cym.* Fred Stewart and the late flowering *Cym.* Joan of Arc.



*Cymbidium* **Darch Dots 'Red Hair'** *(following page)*

The number of attractive and different varieties of the Award of Quality winning *Cym.* Darch Dots grex never ceases to amaze. While this plant was not a winner it was ultimately a successful weekend for another red head from the left wing in our first female Prime Minister, Julia Gillard.

*Carl Slusarczyk*
*Mount Lawley, Western Australia*
*Email: carlslusarczyk@bigpond.com*


*Cymbidium*
Darch Dots
'Red Hair'



*Cymbidium* Red Pepper 'Janice'

# The Dean Roesler Trophy

Text and photos by Kevin Butler

The Dean Roesler Trophy is for the *Cymbidium* hybrid at a National Australian Cymbidium Society Show which the majority of judges consider has the most outstanding colour. The three ACS State Registrar of Judges as a team, look at all the plants and cut flowers in the show and choose those that are likely to have a chance of winning the trophy. This group of plants are presented to all the judges present for a secret ballot.

This year the winner was a cut stem of *Cymbidium* Red Pepper 'Janice' that belonged to Jan and Andy Leaman of Victoria. The flower was intermediate in size, a brownish red with an unusual coloured labellum being nearly pure white. A contrast that is uncommon amongst the cymbidiums that we currently see. I have seen white, yellow, green and pink flowers with a white labellum but rarely the red/brown tones. *C.* Red Pepper 'Janice' is a cross of Ruby Eyes with Rolf Bolin and was bred and registered by Valley Orchids in 1992. The white labellum may be the result of genes from Ngaire which is one of the parents of Rolf Bolin.

The other cut flower stem chosen by the state registrars of judges were *C.* (Pywacket x Robin) exhibited by Carolin and David Allen. The flower had a green background and was overlaid with red spots and lines. The labellum was heavily blotched with dark red around the edge.

Starting with the plants and miniature flower type was *C.* Attractive 'Dulux', the flower being a creamy yellow with red banding in the centre of the flower segments. The labellum was heavily barred with dark red. *C.* Attractive has parentage of the species *floribundum* with Crater and was registered and hybridised by Nado Lenkic. The *C. floribundum* has reduced the flower size of Crater but has allowed its splash colouration to come through. This cross was registered in 2002 and when one looks at the parentage of Crater – it's noted that Ngaire appears again.

The other nomination from Nado Lenkic's plants, also won best Novelty Cymbidium in the show, was *C.* Butterfly Magic 'Springfield'. Butterfly Magic was registered in 2002 and has Bold Move and Royal Rose as its parents. *C.* Bold Move is the



Left: *Cymbidium* Waikanae Kiwi 'Variegated'

parent responsible for the peloric markings with Cleo's Melody and Peter Pan its parents. A small standard in size being a pastel green with a red midline through the dorsal and petals. The sepals had the red labellum markings. The labellum was also strongly barred with red.

The remaining four plants that were nominated were from Ezi-Gro Orchids. Two of these being peloric types; *C.* Magic Times 'Wild Child' and *C.* Stephen 'Err'. *C.* Magic Times 'Wild Child' is a large green with attractive labellum markings on the sepals and a red blotched and spotted labellum. *C.* Stephen 'Err' a slightly smaller flower and is white with a heavily spotted labellum with some bright yellow near the throat of the labellum. The sepal is heavily spotted on the lower half with bright yellow, false keels Magic Times has Valley Bay 'Snow' and Cleo's Melody 'Freakout' as its parents and Stephen is Cleo's Melody 'Freakout' crossed with Pink Ice.

There was a lot of interest in the plant *C.* Alder Creek with *C.* Golden Celebration with the cultivar name of 'Lots of Life'. The flower was eye catching due to it having lots of yellow in the centre of the labellum. The flower was standard in size with a pink colour. The background colour is white with a pink overlay that is also veined with a heavier concentration of pink.

The final nomination was a mutated form of *C.* Waikanae Kiwi with a cultivar name of 'Variegated'. Although the colour of the flowers were highly unusual the plant showed lots of instability in that nearly every flower of the raceme showed a different degree of loss of the green pigment. The plant also displayed an occasional white line through the centre of the leaf.

What will be the next standout colour?

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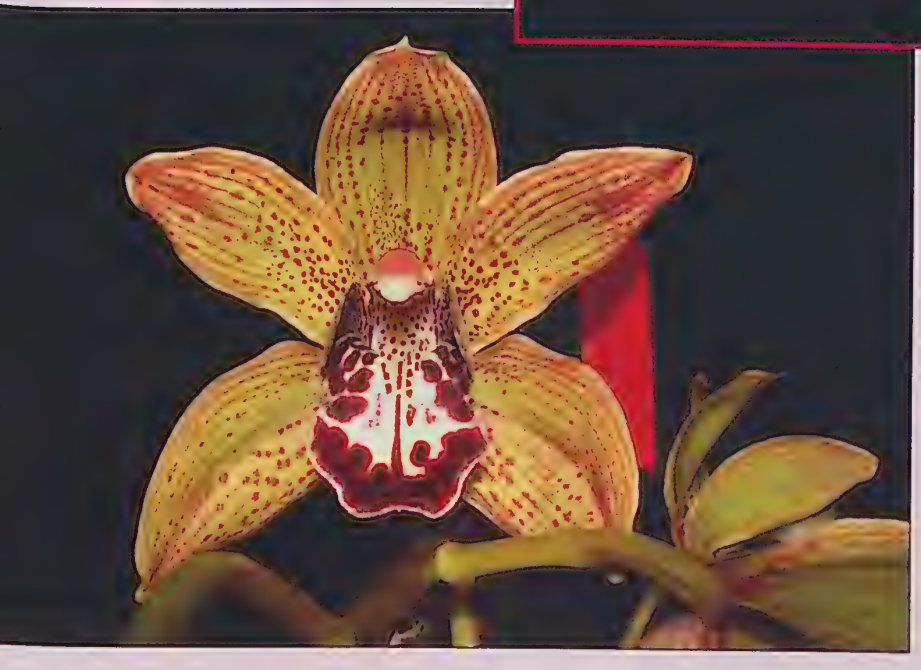


Left: *Cymbidium* Waikanae Kiwi 'Variegated'



Right: *Cymbidium* Attractive 'Dulux'

Below: *Cymbidium* (Pywacket x Robin)



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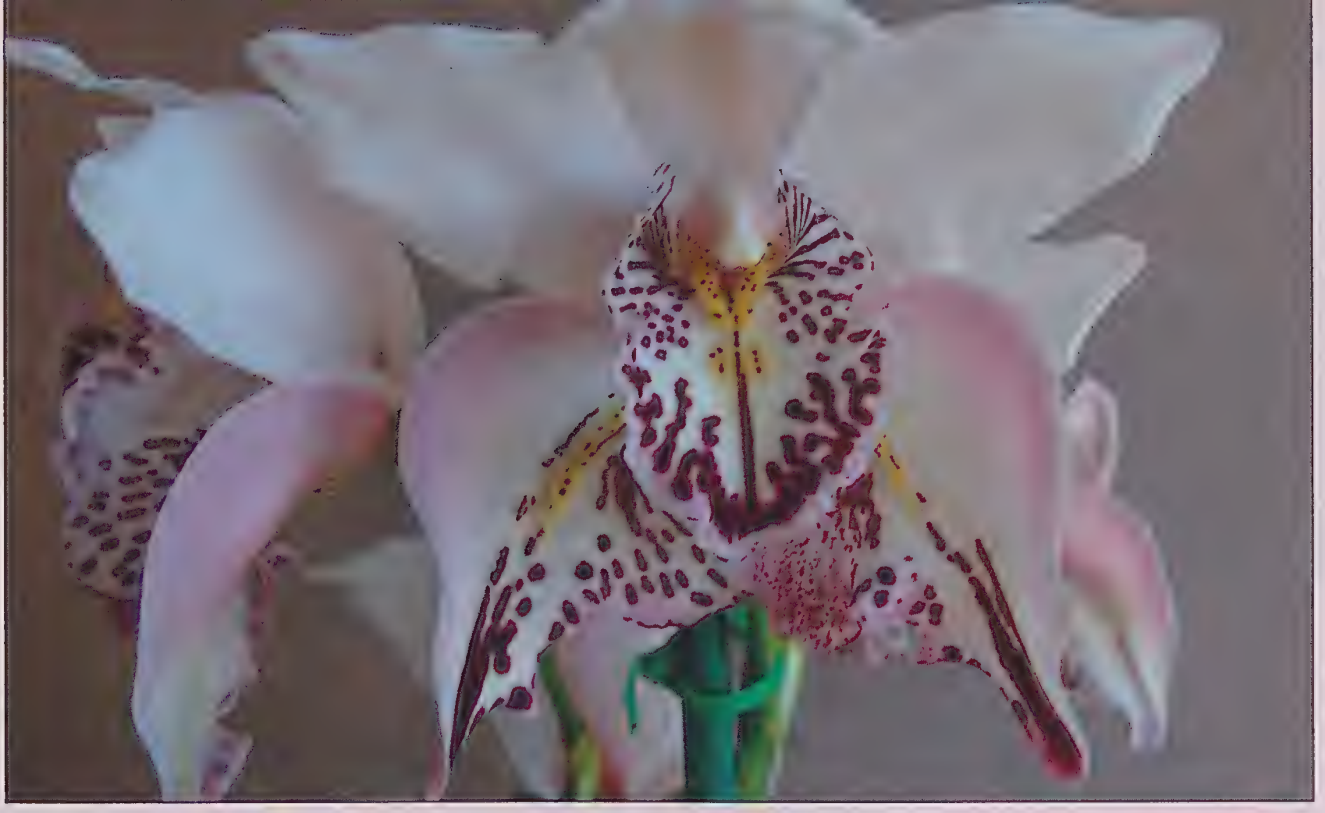
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Above: *Cymbidium* Stephen 'Err'



Left: *Cymbidium* Butterfly Magic 'Springfield'


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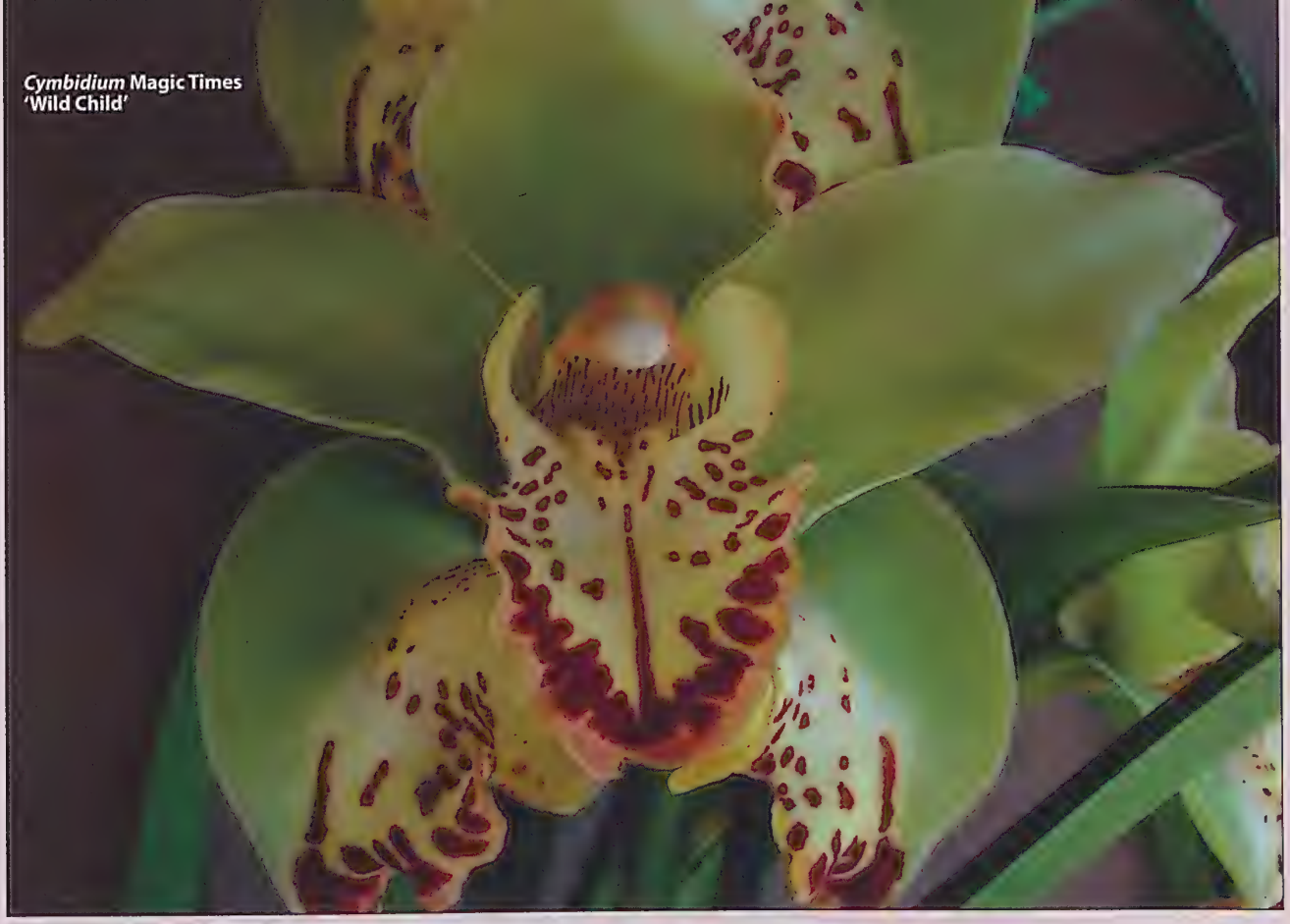
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Below: *Cymbidium* Magic Times 'Wild Child'



# *Phalaenopsis*: Tips on Cultivation Techniques

by Dr. Graham McKay

In their natural habitat, *Phalaenopsis* are epiphytic (growing on trees) or occasionally lithophytic (growing on rocks) orchids native throughout parts of broader Southeast Asia. These "moth orchids" have no major moisture storage mechanism such as a pseudobulb as do many other orchids, but rely on their fleshy leaves for water and nutrient storage. Therefore, to grow well, they are unable to live outside under trees in a temperate Australian climate. They need warmer, moister and more protected conditions, such as (ideally) a waterproof covered greenhouse/ glasshouse or they may be grown inside the home in a suitable position.

Note that this is our own cultural program, as utilised at GiGi Orchids, and as with all such products used you should seek advice and read the safety literature before you embark on the use of all such products.



**Above:** Natural Hormones will increase spiking on multiflora types

### The Popularity of *Phalaenopsis*

Close to 70% of all "pot plant" orchids sold in the world today are *Phalaenopsis* hybrids. This is because:

- Flowering can be year round
- Ease of culture making it possible to grow small plants rapidly into an impressive specimen within 3 – 4 years.
- Floriferous presentation with some varieties having in excess of twenty x 150mm (6 inch) flowers.
- Hybridisation progress can be spectacular with generational improvements within three years from pollination to flowering.
- Colourful presentation means that *Phalaenopsis* hybrids have a wide and spectacular full range of colours.
- Excellent range of presentation on long, well-displayed inflorescences or miniatures with abundant beautiful flowers.
- Compact for easy transport.
- Flowers are long-lasting for up to 3 – 4 months.
- Genetics are well understood as many superior *Phalaenopsis* hybrids are tetraploid (4n).
- Wonderful range of variety presentations.
- Spectacular Species with approximately 80 described species.
- Exhibition challenge is the pinnacle of the orchid hobby to grow and culture a specimen with a high flower count, in pristine conditions. This could take up to three months from the time of the first flower opening.

### Light and Humidity

All these facts lend *Phalaenopsis* hybrids to be the major commercial orchid pot plant grown throughout the world. This also includes *Doritaenopsis* (*Phalaenopsis* x *Doritis*), even though some taxonomists consider them all to be *Phalaenopsis*. When grown under shadehouse conditions, light reduction should be between 70% to 85% shade. Ideal conditions would be:

- 70% to 85% light reduction shadecloth (or similar)
- 70% humidity
- Good air movement, using overhead or wall mounted fans or even natural convection from a sloped or peaked roof with side walls that can be opened and closed as necessary.
- Fertilise once weekly up to only once monthly depending on the potting media and the time of the year.

Here, I will expand on the media and techniques used by my friend and associate Mr Kuo-Liang Hung (Tying Shin Orchids, Taiwan) and my own cultural program.

Sphagnum Moss is the most widely used commercial media for growing *Phalaenopsis*. Mr Hung uses Chinese Sphagnum because a University Analysis in Taiwan found the Carbon/Nitrogen Ratio was 66:8 for Chinese Moss compared to 144:6 for Moss from Chile. [New Zealand Sphagnum Moss is very similar to the moss from Chile]. As a consequence, Chinese Sphagnum will resist developing a lower pH over one year of use. Unfortunately Chinese Sphagnum Moss is not available in Australia and Mr Hung would advise increasing the **organic** fertiliser usage to compensate.

### Tips on using Sphagnum Moss

- Separate your Moss growing areas from your collections of different orchids growing in different media.
- Moisten Moss first then squeeze out all the excess water.

- Use smaller pots with Moss and ideally clear pots which can be the flexible type.
- Tweeze the Moss up and then pack it tightly with 3 downward strokes with the Moss level about 2cm from the top of the pot.
- DO NOT WATER or FERTILISE for 3 to 4 weeks. New roots will begin to form during this period. You can fertilise after the new roots form and become active.
- Once a month you should DOUBLE WATER. First time water to the top of the pot and allow time to drain through the media. The second time will flush out most of the remaining salts.
- Roots are green when wet and white when dry. When roots are dry half way up the pot, it is time to water again.
- Extra drainage is provided by granulated foam in the base of the pot particularly where night temperatures are low.
- Foliar feeding is used to prevent excess algae growth. HY-SAN [Horticultural Solutions] 1 ml per Litre can also control algae and bacteria.
- pH of Moss is 4.0 to 4.5 and this is a natural inhibitor of phytoflora.
- Foliar feeding can be weekly in hot periods of summer and twice monthly during winter.
- Root growth is less with Moss.
- Grow deflasked plants for one year and then repot. If the Moss is still fine then you can simply pot-on by placing new moss around the existing root ball.
- You can trim roots to keep the pot smaller. Trim the roots one day and then repot the next day, allowing the cut roots to dry slightly and seal.
- Use taller pots for potting on when using Moss.
- FERTILISER used should be:

1. Monopotassium Phosphate 1 in 1000
2. Fish Extract and Seaweed Extract Mixture in the ratio of 5:2. This mixture is used in a dilution of 1 in 1000. The seaweed extract contains natural hormones [cytokinins, Auxins, gibberellins and Alginic Acid] which promote root growth, multiple basal growths and multiple flower spikes. This mixture is used by Mr Hung AS A FOLIAR APPLICATION.
3. Horticultural Solutions product HSO22 was designed as a complete fertiliser for use with Sphagnum Moss. I have observed Peters 20:20:20 in use by I-Hsin Biotechnical in Taiwan. However, I have no experience with either of these fertilisers with Sphagnum Moss.



**Left:** Compot Seedling Growth 3 months ex flask, over winter in Coconut Husk

**Below:** Deflasked seedlings in OrchidMate™ Coconut Husk, 3 weeks out of flask showing new leaf & root growth




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### Growing Media currently used at GiGi Orchids

Coconut Husk [OrchidMate™, available from Tinonee Orchids and Easy Orchids] which the supplier advises is already pH adjusted. However, I additionally treat it as follows:

- Soak in Cultiplex Solution for 48 HOURS to reduce salt content and to ensure a pH of 6.0 to 6.5.
- Wash three times with rain water.
- Soak in HY-SAN [3ml per litre] to sterilise, then drain.

We use a mixture of Coconut Husk to Granulated Foam in the fine grade sizes 3 to 5 mm and 5 to 8 mm. The larger size 8-12 mm is used without any foam for larger plants. A small foam layer is used in the base of all pots and CLEAR POTS are used where available (as there is strong evidence that *Phalaenopsis*, along with many vandaceous orchids, can also photosynthesise through their roots).



**Above:** Compot Growth 3 months ex flask over winter in OrchidMate™ Coconut Husk



**Above:** Root Growth after 6 months from flask. Clear pots facilitates photosynthesis of green roots, further assisting plant growth

### Fertiliser Programme used at GiGi Orchids

1. HSO22 1g per litre weekly
2. Week 1 midweek SEASOL as per directions as a foliar application.
3. Week 3 midweek Seasol+PLUS as a foliar application.

The SEASOL and SEASOL+PLUS will alternate midweek every two weeks. I expect that this program will combine the benefits of both a complete inorganic fertiliser nutrition as well as organic nutrition using natural growth hormones. It provides the full range of trace elements and I employ only rain water. The pH of the media and the applied solutions have been between 6.0 and 6.5.

I have used OrchidMate™ media mixture with granulated foam of appropriate sizes this past year with successful results. The photographs accompanying this note showcase some of the young plants and flowering specimens growing in this media. I look forward to (hopefully) improved results using the natural supplements in this program.

As mentioned earlier, this is our own program and as with all such products used you should seek advice and read the safety literature before you embark on the use of all such products. You will also need to account for the salt content of your water supply. This may influence the Electrical Conductivity (EC) Value or Salt Retention of your media.



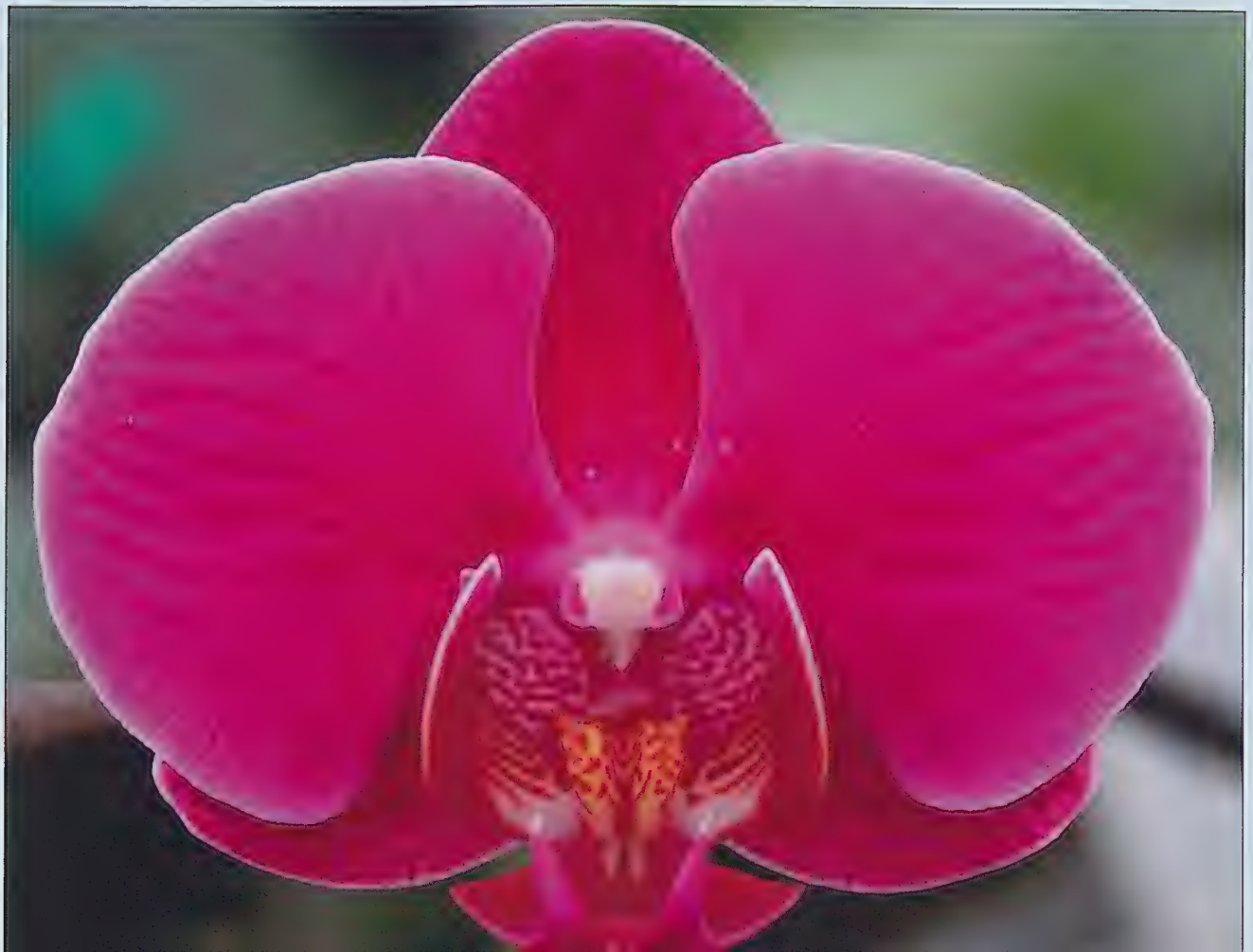



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**Left:**
***Doritaenopsis***
**Tiannong Fantasy**

**Below:**
***Doritaenopsis***
**Ching Ann Diamond**



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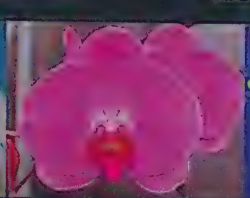

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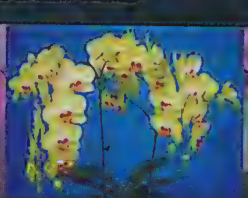

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# Terrestrial Orchids around Dullstroom, South Africa

## - An Orchid Adventure in Grasslands!

Text and photos by Gerrit van Ede

This article reflects on the twenty years that my friends and I have been visiting the closed Nature Reserve – Verloren Valei - near Dullstroom in the Mpumalanga Province of South Africa. This has been a wonderful experience and a great learning exercise about a great many things other than terrestrial orchids.

Mpumalanga is a province on the north eastern side of South Africa. The province has a diverse geographical composition with areas in the so-call Lowveld that is below 1000 m above sea level. The highest railway station in South Africa, Nederhorst at 2077m, falls in this province as well as the highest point in the province, De Berg at 2332m above sea level. The station Nederhorst does not exist anymore, but the railway line is still there and both these high points are in close proximity of Dullstroom. A drive of about 20km on a dirt road will take you from Nederhorst to The Berg, with part of this road, goes through the Verloren Valei Nature Reserve.

### History

Dullstroom was founded by Wolterus Dull when he settled with a number of Dutch emigrants at this location in 1883. The Major Dull thought that the Dutch would adapt well to the misty cold weather at Dullstroom but unfortunately for him this was not to be the case. Farm names like Wanhoop (Despair), Verloren Valei (Lost Valley), Frischgewaagd (New Challenge) and others, indicate the difficulties the settlers experienced in this area. During the Second Boer War in the early 1900's the town was largely destroyed and most of the emigrants returned to the Netherlands.

With the help of the WWF and the Rupert family the farms Verloren Valei and Wanhoop was bought and a 5891 hectare nature reserve called Verloren Valei was proclaimed in 1983. The reserve includes about 30 wetlands ranging in size from 2ha to 250ha. In 2003 Verloren Valei became the 17th RAMSAR wetland in the world and the second in South Africa.

### Verloren Valei

The spelling of "valei" is technically incorrect today and should be spelled as "vallei". However the original farm was Verloren Valei and that is the correct name for this reserve. The Reserve is situated on a watershed between the Olifants and Crocodile drainage systems on the Steenkamps mountain plateau. The west flowing streams are tributaries of the Steelpoort River, which is part of the Olifants system. The east flowing streams are part of the Lunsklip River, which is a tributary of the Crocodile River. The south flowing stream is the stream source of the Crocodile River.

The reserve is situated in the Highveld climate region. The climate is described as a cool, moist climate where average temperatures do not exceed 18°C. Rain falls in the summer and the average rainfall per year is 840mm and thunderstorms are frequent during this period. Mist often occurs and snow has been recorded from time to time.

The maximum temperature recorded is 29°C and the lowest was –13°C. Frost is common between March and September. During my 20 years involvement with Verloren Valei, frost was recorded at the end of December and a particularly bad spell over two days in the middle of January. No orchids in bloom remained after this cold spell.



Map of South Africa showing location (red balloon) of Verloren Valei Nature Reserve (map: Google Earth)

The wetlands of Verloren Valei exhibit a near-pristine state of vegetation, and include good examples of a natural wetland characteristic of the Steenkampsberg Plateau.

Three vegetation units are identified in Verloren Valei being:

1. *Tristachya leucothrix* (turpentine grass) grassland,
2. *Coleochloa setifera* & *Habenaria clavata* est grassland, and
3. Wetlands.

A small isolated pocket of peatland occurs, which is very rare in South Africa.

### The Orchids of Verloren Valei

My first visit to Verloren Valei was during the summer of 1989. I loved the open grasslands of the area and had no difficulty in spotting orchids, some in large numbers. Back home we did some reading and discovered that with the original survey of the plants before the reserve was proclaimed, eight orchid species were found. This looked a bit on the low side and I decided to do a survey over time to determine how many orchids do grow on the reserve. The only way to do this was to visit the reserve more or less every three weeks during the flowering season.

The flowering season starts with the so called pre-rainfall flora, which are plants that flower before any rain has fallen, usually at the end of August till the end of September. As we start to expect rain from the end of September, finding orchids in the brown, often tall, winter grass is difficult. The easiest method is to go to burned areas as the grass, although sprouting is still very short and a flowering plant can easily be seen. One such an orchid is *Disa baurii*, an orchid that is quite common in the Dullstroom area, but curiously enough only found for the first time in the spring of 2009 on Verloren Valei.

We knew we would find plants like *Satyrium ocellatum, Satyrium trinerve, Satyrium cristatum, Disa rhodantha, Disa chrysostachya, Disa stachyoides, Disperis tysonii, Eulophia foliosa, Disperis renibractea* and many others. Many of the grassland orchids are small and difficult to spot in the tall summer grass.

We hoped to find *Eulophia parvilabris, Disa alticola* and other high altitude grassland orchids, but plants that we expected to find like *Centrostigma occultans*, or *Disa amoena* have as yet not been found on the reserve. *Centrostigma occultans* is an interesting case as it occurs in a swampy area (a vlei) just outside the reserve at about 2000m above sea level. In spite of numerous suitable wetlands on the reserve not a single plant has been found as yet.

I have speculated that the somewhat higher altitude of the reserve (above 2050m) causes a lower soil temperature



**Above: *Satyrium ocellatum***



**Above: *Satyrium trinerve***

and that either the species itself or the associated mycorrhiza cannot handle this lower temperature. We have not tried to locate plants on the reserve as no plants are available for re-location and the aim is rather to protect the few colonies in and around Dullstroom with the help of the owners of the farms. Fortunately we have today four separate colonies around Dullstroom.

Then there are the plants we never expected to find like *Disperis stenoplectron*, *Disperis oxyglossa*, *Habenaria tysonii* and *Satyrium microrrhynchum* which are plants from the Kwazulu-Natal Drakensberg area. The Steenkampsberg plateau as well as the areas around it appears to be a dislocated extension of the Kwazulu-Natal Drakensberg.

As can be expected we would encounter other speciality groups at the reserve. The bird-watching people often visit the reserve while the butterfly people also arrive from time to time. From the butterfly groups we learned that the same surprise collection of butterflies previously only known from the Kwazulu-Natal Drakensberg were also found at Verloren Valei. This may apply to moths also as obviously one needs the pollinators to be in the vicinity.

Now and then the identification remains unsatisfactory with the *Eulophia clavicornis* group an example of this problem. With the recent publication of the *Field Guide to the Orchids of Northern South Africa and Swaziland* by Douglas McMurtry, Lourens Grobler, Jolisa Grobler and Shane Burns and their different treatment of this species, we will have to re-look at what we did find at Verloren Valei. They at least solved one problem species for us and that is the early flowering wine red form of *Eulophia leontoglossa*. When the original collection of this species was sent to the Bolus Herbarium it was identified as a form of *Eulophia leontoglossa*. This appeared to be incorrect as *Eulophia leontoglossa* flowers in December–January, is normally yellow in colour, although there is a pink form that flowers at the same time. Our wine red form flowers as a pre-rainfall plant in September–October and has now been aptly named *Eulophia vinosa*. *Eulophia leontoglossa* also occurs on the reserve, but only sporadically.

Now and then we find an old friend from lower altitude like *Eulophia ovalis* or *Eulophia bainesii*.

From the above you will gather that we have recorded more than the original eight species and you may wonder where we stand today.

Depending on whose classification you follow, the species count at Verloren Valei stands at 52–56 species, spread over 11 genera. The larger Dullstroom area adds at least another two genera and fifteen or so more species.

The question can be asked if declaring the area a nature reserve made any difference to the orchids. One can only go on the impression we have from visiting the reserve in the early days to today. Some things have changed and we have the distinct impression that the number of plants of a species we see today, has increased. Colonies also appear to be larger, and some species that we had considered rare because of a single colony on the reserve, are now more common with more colonies in existence. *Satyrium bracteatum* comes to mind as a species that has spread its wings and is now much more common.




We would be lucky to find a single *Disperis cardiophora* in the early days, but today we would find five, six or more plants in flower on a single day. One colony was counted with thirty plants in bloom a few years ago.

We have found a single plant of *Disperis oxyglossa* at one site and the other site had about five to six plants but in 2009 we encountered a colony of well over fifty plants at the second site. For those that could pick-up the sweet scent of this *Disperis* it was an easy plant to find.

Unfortunately there are also plants that we see less frequently than before such *Eulophia aculeate*, and others like *Disa aconitoides* and *Habenaria clavata*, remain rare. Our impression is that *Disa versicolor* is not as abundant as before, but it could rather be that there are more *Disa cooperi* or *Disa brevicornus* which could account for *Disa versicolor* been less noticable.

The Dullstroom area is extremely rich in flowering plants, and is home to, amongst others, the dwarf yellow and pink Arum lilies and *Eucomis vandermerwei*, representing some of the flowers that few people ever see. Some beautiful gladiola also occur. The reserve is also reach in plants of the Milkweed family especially in the section *Pachycarpus* and *Asclepias*. A number of Red Hot Pokers also occur and *Agapanthus inapertus* flowers in mass at the end of January.



**Left:**
***Disa rhodantha***



In the Western Cape the smaller towns have Wild Flower Shows in spring – their peak flowering period. It occurred to me that Dullstroom could do with a Wild Flower Show, but in January during their peak flowering period and therefore to celebrate twenty-one years of exploring Verloren Valei and World Wetlands Day on 2 February 2011, a Terrestrial Orchid Conference is been organised over the weekend of 28-29 January 2011 with visits to orchid sites around Dullstroom.

The Dullstroom Wild Flower Show will also take place over this period. I hope to see some of you there. ■

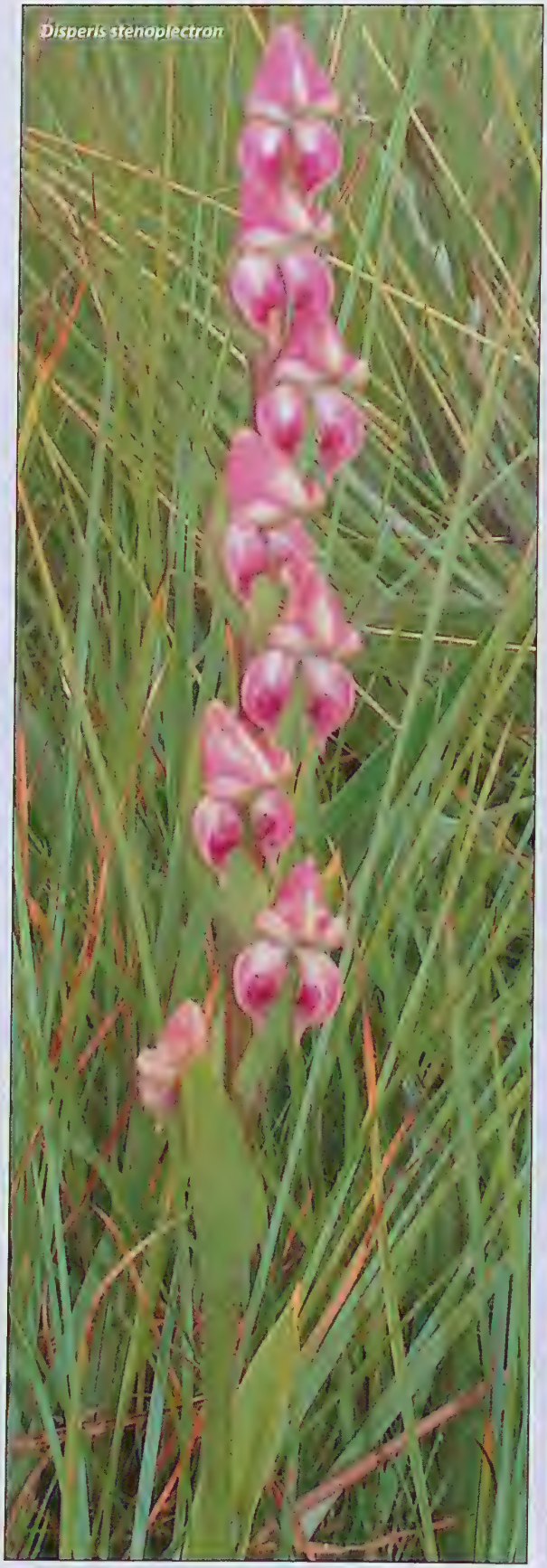
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**Above:** ***Centrostigma occultans***

**Below:** ***Disperis renibractea***

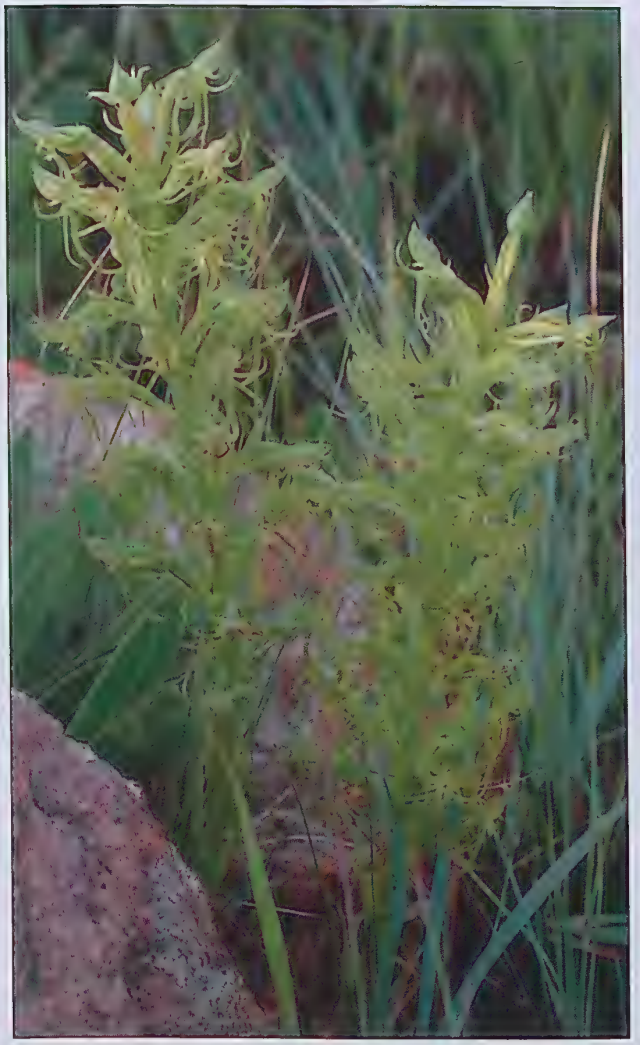




*Disperis stenoplectron*



*Disperis oxyglossa*



**Above:** ***Habenaria tysonii***



**Right:**
***Satyrium microrrhynchum***


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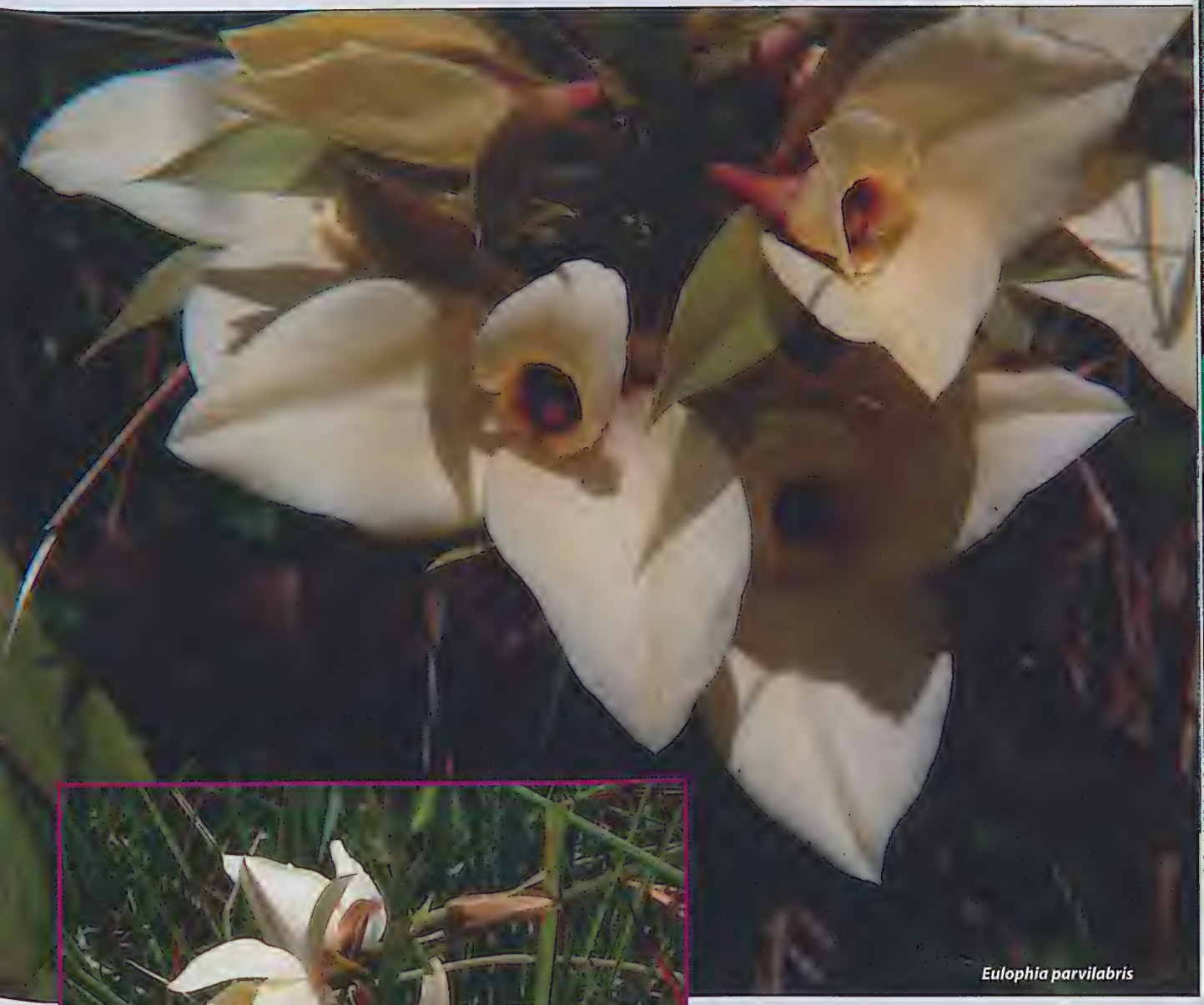
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Left: ***Eulophia vinosa***

Below: ***Eulophia ovalis***



*Eulophia parvilabris*



**Left:** ***Eulophia bainesii***


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**Left:**
*Disperis cardiophora*



**Right:**
*Habenaria clavata*

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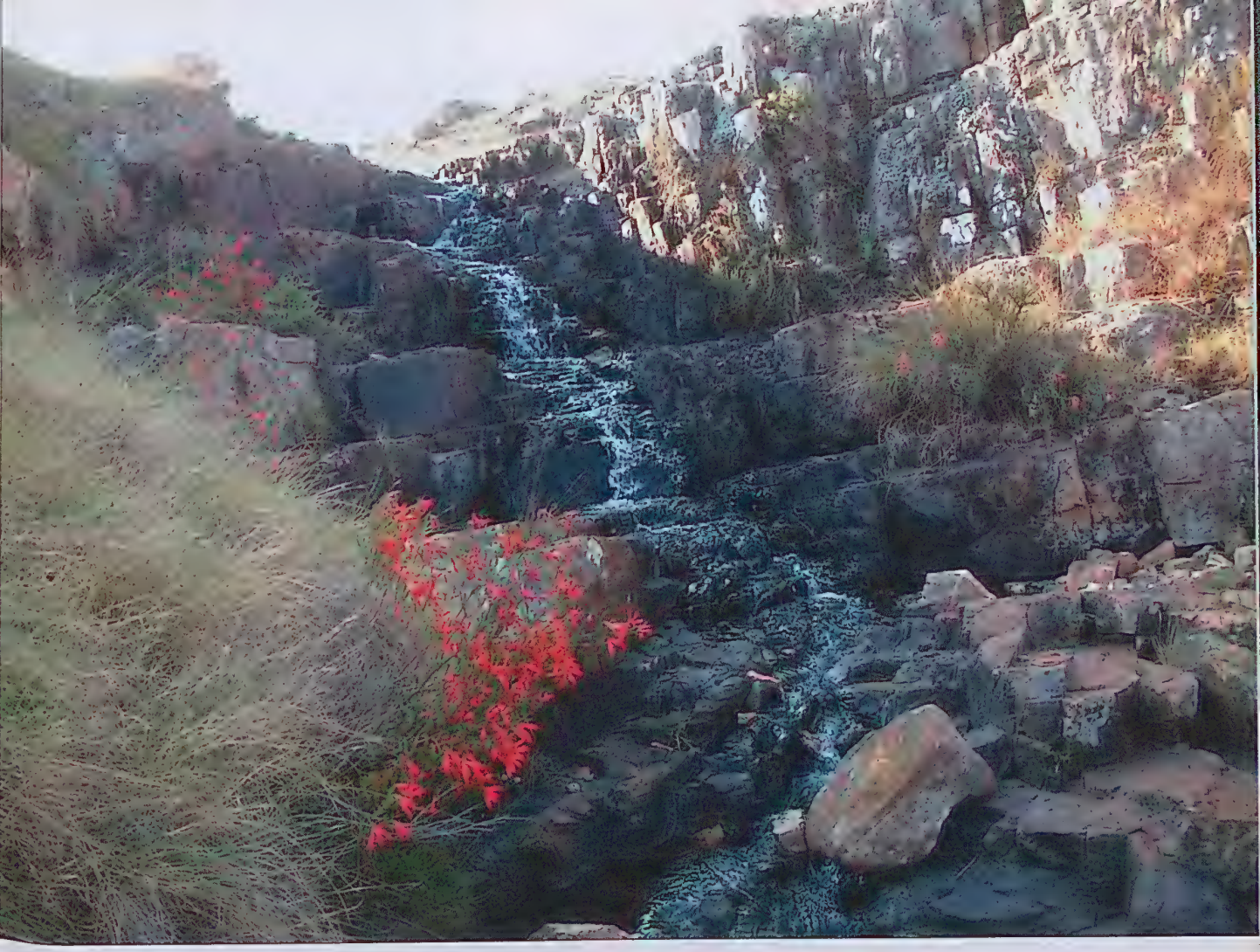
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**Above:** Verloren Valei Waterfall (with heath *Erica cerinthoides*)


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**Above:** Verloren Valei scenery


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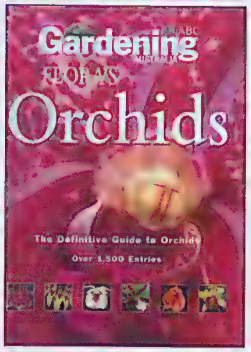
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AOR Editor David P. Banks was the Senior Consultant for *Flora's Orchids* and is also credited as the Principal Writer. Especially valuable for aspiring botanists and average gardeners is the background information that precedes the dictionary text and explains orchid varieties, taxonomy, hybridisation, history, cultivation, propagation, and more. The history section delves into the fascinating historical development of the plant for culinary and medicinal usage and also explores the use of orchids in folklore and literature. A detailed cultivation table for each of the species is found in the appendix. This work is regarded by many as the logical replacement of *What Orchid Is That?*

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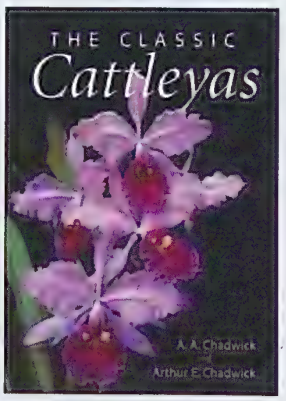
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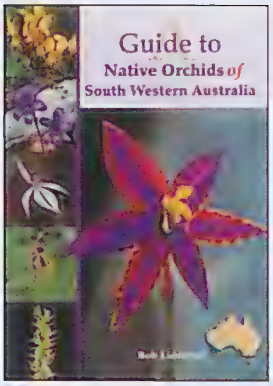
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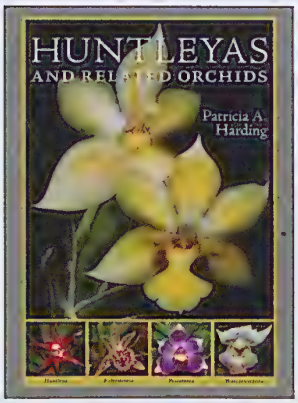
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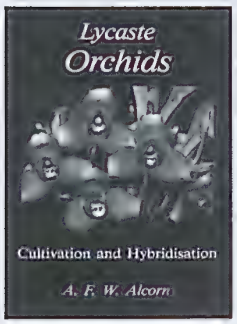

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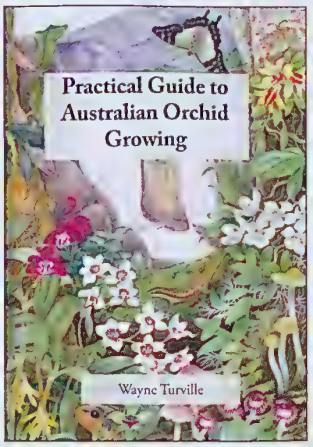
Explanations of the way Phalaenopsis are named and the implications of growing seedlings, illustrate some of the more difficult ideas for the layman to understand.

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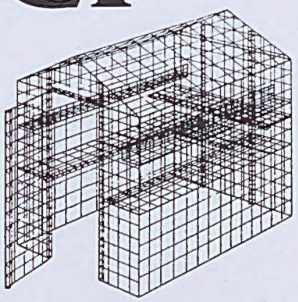
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***Disa uniflora*, the "Pride of Table Mountain" in South Africa, grown by George Fuller of New Zealand (photo: D. Banks)**

# Australian Orchid Review

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Queensland International Orchid Fair
(www.orchidfair.com.au) – Bray Park, Qld

**April 8-10**
Sydney International Orchid Fair
(www.orchidfair.com.au) – Castle Hill Showground, NSW

**April 16-17**
Collector's Plant Fair
(www.collectorsplantfair.com) – Bilpin NSW

**May 19-22**
Orchids Out West
– Hawkesbury Racecourse, Clarendon NSW

**May 21-22**
6th Orchid and Garden Oasis Expo – Southport Qld

**June 10-12**
TQOC Conference and Show – Bowen Qld

**June 26-27**
Mingara Orchid Fair – NSW

**October 1-2**
South & West Regional Conference & Show
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**October 7-9**
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– Sharkies, Woolooware NSW

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